

INDEX

COPEIA, 1992, Nos. 1–4

NEW NAMES

Acanthophtalmus agmus 172–185
Bufo arborescendens 162–182
Ekemblemaria lira 769–775
Eleutherodactylus bellona 826–831
E. eurydactylus 1002–1005
Eomola 1014–1022
E. bimaxillaria 1014–1022
Erythrocles taeniatus 1029–1031
Etheostoma chienense 617–644
E. corona 617–623, 627–644
E. forbesi 617–644

E. oophylax 617–644
E. pseudovulvatum 617–644
Eurycheilus 215–217, 221, 222
E. pantherinus 215–222
Ophidion robinsi 800–813
Pavoraja (Insentiraja) 840–849
P. laxipella 840–849
Phyllodytes melanomystax 187–190
Tropidophis fuscus 820–824
Xyrichtys victori 1053–1058

NEW AND ESTABLISHED NAMES

Ablennes 14
 Abronia
 mixteca 1116
 oaxaca 1116
Acanthemblemaria 775
 macropsilus 378
Acanthomorpha 9, 12, 18
Acanthophtalmus 173–182
 agmus 172–185
 anguillaris 177
 cuneovirgatus 173–183
 fasciatus 181
 goaensis 177
 kuhlii 172–185
 k. kuhlii 182
 k. malayanus 173, 181, 182
 k. sumatranus 173, 182
 muraeniformis 173, 177
 myersi 173, 181, 182
 pangia 177
 robiginosus 173, 177, 179
 semicinctus 173, 181, 182
 shelfordii 173, 176, 177
 sumatranus 181
 superbus 173, 177
Acanthophtalmus 175
 fasciatus 181
 superbus 259
Aequidens 784–789
 pulcher 784, 787
Agamidae 147, 563
Agkistrodon contortrix 576
Agonostomus monticola 783
Agosia chrysogaster 701
Aidablennius sphynx 1051, 1052
Alburnops 339
Alepisauridae 9

Alepisauridae 9
Alepisaurus 14, 18, 21
Alepocephalidae 351, 357–359
Alepocephaloidea 350–358
Alepocephalus 352, 355
Alfaro 788
Alligator 241
Alligatorinae 241, 242
Alloclinus holderi 378–388
Allosmerus 355
 attenuatus 354
Alsophis 63
 portoricensis 62–67
Alticus 1007, 1008, 1010, 1012
 kirki 1007, 1009, 1011
Amblyrhynchus cristatus 106
Ambystoma 472, 608, 673
 barbouri 468–472
 mexicanum 732
 tigrinum 608–612, 672–679
 t. melanostictum 673
 t. nebulosum 608
Amia 11, 15
 calva 301
Ammocrypta 535–537, 637, 987–992, 994–999
 (*Ammocrypta*) 996
 beani 998
 pelucida 998
 vivax 992, 998
Ammodytes 801
Amphibia 584, 826
Amphibolurus nuchalis 347
Amphiprion 902
 akindynos 904
 melanopus 903–905
 percula 903
 perideraion 903

INDEX

COPEIA, 1992, Nos. 1–4

NEW NAMES

Acanthophtalmus agmus 172–185
Bufo arborescendens 162–182
Ekemblemaria lira 769–775
Eleutherodactylus bellona 826–831
E. eurydactylus 1002–1005
Eomola 1014–1022
E. bimaxillaria 1014–1022
Erythrocles taeniatus 1029–1031
Etheostoma chienense 617–644
E. corona 617–623, 627–644
E. forbesi 617–644

E. oophylax 617–644
E. pseudovulvatum 617–644
Eurycheilus 215–217, 221, 222
E. pantherinus 215–222
Ophidion robinsi 800–813
Pavoraja (Insentiraja) 840–849
P. laxipella 840–849
Phyllodytes melanomystax 187–190
Tropidophis fuscus 820–824
Xyrichtys victori 1053–1058

NEW AND ESTABLISHED NAMES

Ablennes 14
 Abronia
 mixteca 1116
 oaxaca 1116
Acanthemblemaria 775
 macropsilus 378
Acanthomorpha 9, 12, 18
Acanthophtalmus 173–182
 agmus 172–185
 anguillaris 177
 cuneovirgatus 173–183
 fasciatus 181
 goaensis 177
 kuhlii 172–185
 k. kuhlii 182
 k. malayanus 173, 181, 182
 k. sumatranus 173, 182
 muraeniformis 173, 177
 myersi 173, 181, 182
 pangia 177
 robiginosus 173, 177, 179
 semicinctus 173, 181, 182
 shelfordii 173, 176, 177
 sumatranus 181
 superbus 173, 177
Acanthophtalmus 175
 fasciatus 181
 superbus 259
Aequidens 784–789
 pulcher 784, 787
Agamidae 147, 563
Agkistrodon contortrix 576
Agonostomus monticola 783
Agosia chrysogaster 701
Aidablennius sphynx 1051, 1052
Alburnops 339
Alepisauridae 9

Alepisauridae 9
Alepisaurus 14, 18, 21
Alepocephalidae 351, 357–359
Alepocephaloidea 350–358
Alepocephalus 352, 355
Alfaro 788
Alligator 241
Alligatorinae 241, 242
Alloclinus holderi 378–388
Allosmerus 355
 attenuatus 354
Alsophis 63
 portoricensis 62–67
Alticus 1007, 1008, 1010, 1012
 kirki 1007, 1009, 1011
Amblyrhynchus cristatus 106
Ambystoma 472, 608, 673
 barbouri 468–472
 mexicanum 732
 tigrinum 608–612, 672–679
 t. melanostictum 673
 t. nebulosum 608
Amia 11, 15
 calva 301
Ammocrypta 535–537, 637, 987–992, 994–999
 (*Ammocrypta*) 996
 beani 998
 pelucida 998
 vivax 992, 998
Ammodytes 801
Amphibia 584, 826
Amphibolurus nuchalis 347
Amphiprion 902
 akindynos 904
 melanopus 903–905
 percula 903
 perideraion 903

- Anabantidae 709
Anabas
argentoventer 718
breviventralis 718, 719
caudomaculatus 716, 718
petherici chadensis 716, 718
riggenbachi 716
togoensis 716, 718
Anacanthini 18
Anacanthobatis 842
Anaethalion 13
Andinophryne 170, 171
Andrias 232–235
davidanus 233
japonicus 232–235
Anguillidae 147, 563, 1114
Anguilla 197, 202–205, 207
anguilla 207, 1037
japonica 207
rostrata 561
Anolis 279–288, 392, 493, 494, 587, 588
bimaculatus 280–296, 290–294
carolinensis 282, 291, 492–503
cristatellus 63
cuvieri 393
distichus 282
evermanni 393–402
extremus 282, 291
ferreus 280, 284
garmani 282
gingivinus 280–286, 292, 293
grahami 282, 291, 293
gundlachi 393–402
krugi 397
leachi 280, 284–286, 291–294
lineatopus 291, 401
lividus 280, 284
marmoratus 280–286, 293, 294
m. alliaceus 285, 293
nubilis 280, 284
oculatus 280–286, 393
o. montanus 285
pogus 280–286, 292, 293
porcatus 282, 291
pulchellus 401
sabanus 280, 284
sagrei 282, 291, 400, 942–953
s. ordinatus 943, 952
s. sagrei 943
schwartzi 280–285, 290
stratulus 393–402
terraealtae 280, 284
wattsi 280–286, 291, 292, 294
Anotopteridae 9
Anotopterus 14, 21
Antennariidae 247
Antennarius
commersonii 247
marmoratus 247
multiocellatus 247
Anthias
squamipinnis 204
Antigonia
capros 1031
malayana 1031
rubescens 1031
Anomalepis 1104
Anura 130, 162, 187, 1002, 1120
Aphredoderus 14
sayanus 301
Aplodinotus grunniens 300, 301, 989
Apua 175
Archosargus
probatocephalus 917–919
p. aries 1044
p. oviceps 1044
p. probatocephalus 1044
Archosauria 595
Argentina 12, 15, 352, 353, 355
striata 12, 15
Argentinidae 351, 356–358
Argentinoidea 350, 353, 356
Argentinoidei 350, 351, 354, 355
Astyanax
bimaculatus 783, 1071
fasciatus 1071
Atelophryniscus 170, 171
Atelopus 170, 171
Atherinidae 53, 258
Atherinopsinae 388
Auchenionchus microcirrhis 378–388
Auchenipteridae 140
Auchenipterus 140
Aulopidae 9
Aulopiformes 8–14
Aulopoidei 9, 14
Aulopus 12–14, 19
japonicus 11, 1031
Bagridae 140, 1084
Bagrus meridionalis 1084–1087
Barbourisia 16
Barisia 1116
rudicollis 1114–1116
Bascanichthys
bascanium 1044
inopinatus 1044
scuticaris 1044
Basilichthys 258
archaeus 256
australis 256–258
beardsleei 256
microlepidotus 256–258
semotilus 256
Bathylaco 352–359
Bathylaconidae 358, 359
Bathylagidae 351, 356–358
Bathylagus 352–355
longirostris 353–355

- Bathylchnops* 354
Bathypriion 352, 353, 358, 359
Bathypriionidae 358, 359
Bathypteroidae 9
Bathypterois 14, 18, 356
Bathyraja 842, 843
(Pavoraja) 842, 843
spinifera 843
Bathysauridae 9
Bathytroctes 352-355
Batrachia 887
Belonidae 882
Blenniidae 388, 1007, 1044
Blennioidei 375
Blennius pholis 1012
Bodianus eclancheri 1057
Boiga
dendrophila 1124
irregularis 791-797
Boleophthalmus boddarti 1010, 1012
Bombina orientalis 129, 130
Boreogadus 1088-1093
macrocephalus 1088-1092
morhua 1088-1093
ogac 1088-1092
saida 1088-1092
Bothidae 1094
Bregmaceros 596
filamentosus 1014
Bregmacerotidae 596
Breviceps verrucosus 766
Brevoortia
gunteri 1044
smithi 1044
Bronchocela
crystalinus 593
smaragdina 592
Brotula 812
Bufo 162, 167-171, 577, 581, 582, 760, 761, 766,
767, 888, 890, 893, 1122
achelensis 168
alvarius 767
americanus 1-7, 419, 469, 725, 737, 767, 870
anderssoni 167
arborescens 162-182
arenarum 168
arequipensis 168
arunco 168
asmarae 767
asper 767
atacamensis 168
blombergi 167
bocourti 170
boreas 578-584, 767, 865, 866
bufo 767
caeruleostictus 167
calamita 1
ceratophrys 168
chilensis 168
coniferus 169
cophotis 168, 170
corynetes 163, 168, 170
crucifer 167, 170
dapsilis 168
debilis 767, 865
dhufarensis 767
diptychus 166
dorbignyi 167
fastidius 170
fernandesi 167
fissipes 163, 169, 170
flavolineatus 168
glaberrimus 167
gnustae 166
granulosus 167
guttatus 166, 167, 767
haematiticus 167, 888, 889
holdridgei 170
hypomelas 166
ictericus 168, 767
inca 163, 165, 169, 170
intermedius 166
iserni 168
juxtasper 767
kellogii 767
leptoscelis 163, 169, 170
limensis 168
manicorensis 167
marinus 167, 168, 587, 767
marmoreus 767
mauritanicus 767
mazatlanensis 767
nasicus 168
nelsoni 767
nesiotes 163, 169
ocellatus 166, 167
ockendeni 166
paracnemis 168, 767
periglenes 170, 413-419, 888, 889
peripatetes 170
poepigii 168
punctatus 767
pygmaeus 167
quechua 163, 169
quiricus 767
roqueanus 168
rubropunctatus 168
rufus 168
schneideri 166
simus 166
speciosus 767
spinulosus 168, 170
sternosignatus 168
tacanaensis 170
terrestris 767
trifolium 168
typhonius 162-170, 767
valliceps 167, 170, 647-657, 767, 871
variegatus 168, 170
vellardi 168

- veraquensis* 162-171
viridis 767
woodhousei 1, 767, 865-867, 870, 875
Bufonidae 162, 413
- Caecilia** 703, 706
gracilis 703, 704, 707
Caeciliidae 703, 706
Caeciliinae 706
Caecilidae 706
Caeciliinae 706
Caiman 241
crocodylus 242
Callogobius 254
Calophysus 139
Campostoma 37, 39, 42
anomalum 38-41, 552
Canthigasteridae 1021
Caranx 19
male 864
Carcharhinoidei 507
Carcharinus 882
Carcharodon carcharias 680
Caretta caretta 478, 479
Carlhubbsia 475, 476
Catostomidae 935
Catostomini 935
Catostomus 939
brevirostris 939, 940
(Catostomus) 939
commersoni 751
latipinnis 940
tahoensis 935-941
Caudata 130, 235
Centrarchidae 986, 989
Centrarchus 991
macropterus 991, 993
Centroberyx affinis 1031
Centrobranchus 154-160
andreae 154, 155, 159
brevirostris 154-160
choerocephalus 154-160
gracilicaudus 154, 155
nigroocellatus 154-160
Centromochlus 140
Centropomus 19
Centropristis 999
Centropyge flavissimus 905
Centroscyllium 516
Centroscyllium owstoni 509
Cephalopholis 916
Cephaloscyllium 516
Ceratophora 592
Chaenogobius 253
Chaenopsidae 375, 377, 378, 384, 388, 769, 770, 774, 775
Chaetodon 906
bennetti 904
kleinii 904
- lineolatus* 906
oxycephalus 904, 906
punctatofasciatus 904
ulietensis 904, 905
Chamaeleontidae 563
Chandidae 259
Chandramara chandramara 140
Channa 259
Characidae 108
Characidiinae 1066, 1072
Characidium 1067, 1068, 1071
bahiense 1068
boevisatae 1068, 1070
bolivianum 1068, 1070
fasciadorale 1071, 1072
fasciatum 1066-1072
gomesi 1068, 1071
lagosantensis 1067, 1068
purpuratum 1068, 1070
voladorita 1068
zebra 1067-1072
Characiformes 1066
Chasmistes 940
cujus 935-941
Chasmodes bosquianus bosquianus 1044
Chauliodus 13
Chelonina mydas 45, 46, 478, 479, 1098, 1099
Chiasmocleis 896
shudikarensis 895
sp. 895
Chlamydoselachus 505-516
anguineus 505-516
Chlorophthalmidae 9, 13
Chlorophthalmus 13, 14, 356
chalybeius 354
Chondrichthyes 505, 839, 882
Chriodorus 14
Chrysomys picta 566
Cichlasoma
labridens 981
nigrofasciatum 832, 833, 837, 923
Cirrhitigaleus 512, 516
Cirrhoscyllium japonicum 509
Citharichthys 1078
abbotti 1095
platophrys 1077, 1078
spilopterus 1094, 1095
Clemmys
insculpta 372
muhlenbergii 1107-1110
Clinidae 375-378, 384
Clininae 388
Clinini 375-378, 385, 388
Clinitrachus 377
argentatus 377
Clinostomus funduloides 549, 898
Clupeidae 1044
Cnemidophorus 323-331
inornatus 324, 328
marmoratus 324-330

- neomexicanus* 324
sexlineatus 324
tesselatus 324-328
tigris 324
t. marmoratus 324
uniparens 324, 328, 695
Cobitidae 172, 223
Cobitis 175
biwae 223
taenia 223-226
Cobitophis 175
Coccorella atrata 21
Coilia coomansi 259
Coleonyx variegatus 147
Colostethus marchesianus 895
Colubridae 64, 791
Congridae 1044
Cophosaurus 82, 91, 92
texanus 82, 86, 90-92, 324
Cordylidae 152, 563
Cordylus
giganteus 152
warreni 152
Coregonus artedii 533
Cottidae 485
Cottus
bairdi 485, 486, 489, 669
caroliniae 301
echinatus 921
extensus 921
Crenicichla 784-789
alta 784
Crepidophryne 170
Cricosaura 564, 587
typica 563-565
Crocodilia 241
Crocodylus 241, 243
johnstoni 1024, 1026
niloticus 1023, 1024
rhombifer 242, 1025
Crotalus 575, 1104
atrox 65, 66
viridis 1106
v. viridis 1117, 1118
Crotheaphytidae 968
Crotaphytus 968
collaris 968-980
Cryptobranchidae 232
Cryptobranchus 232-235
alleganiensis 232-235
Cryptotremiini 378
Crystallaria 987-990, 992, 994-998
asprella 535-537, 988, 992, 994
(Crystallaria) 996
Crytodactylus 592
sworderi 592
Crytopodion 592
Ctenopoma 709, 716-719
kingsleyae 709-722
muriei 716
nebulosum 709-716, 719
petherici 709-722
p. chadensis 718
Ctenosaura similis 347
Ctenosquamata 8-20
Ctenotrypauchen 253
Culaea inconstans 863, 864
Cyclothone 261
alba 261
braueri 261
Cyclura 587
Cyprinella 332, 338, 339
tutrensis 300
venusta 301
whipplei 301
Cyprinidae 68, 306, 332, 954
Cyprinodon 531, 533
diabolis 531
nevadensis 531, 532
n. amargosae 531
n. mionectes 531
n. nevadensis 531
n. pectoralis 531
Cyprinodontidae 747
Cyprinodontiformes 474, 747
Cystignathus
fragilis 584
labialis 584
Dasia 591
Deania 507
Dendrobates pumilio 1085
Dendrophryniscus 170
Dentex griseus 262
Dermochelys coriacea 51, 478, 479
Dermophiinae 706
Dermophis 706
Diaphus 19
mollis 22
Dibamidae 591
Diodon holocanthus 882
Diodontidae 1091
Dionda 37, 39, 42
episcopa 38-41
Diplophos 15, 356
Dipsas costaricensis 421, 424
Dipsosaurus dorsalis 147, 229, 347
Discoglossidae 130
Dissotichius mawsonii 560-561
Dormitator 784
maculatus 783
Draco 592
Echidna
catenata 198
delicatula 198
nebulosa 197-207
Echinorhinus 514, 516

- Echiophus*
intertinctus 1044
punctifer 1044
Ekemblemaria 769–775
lira 769–775
myersi 769–775
nigra 769–775
Elaphe
guttata 574, 575
obsoleta 576
Elapidae 791
Eleotris 254, 784
pisonis 783
Eleutherodactylus 587, 826, 1002
altamazonicus 1002, 1005
bellona 826–831
carvalhoi 1002
coqui 569–572
diadematus 1002–1005
euridactylus 1002–1005
imitatrix 1002
johnstonei 569–572
lacrimosus 1002
mendax 1002
nigrogrisea 1005
ockendeni 1002
orphanolaimus 1003, 1004
peruvianus 1002
platydactylus 1002, 1005
quinquagesimus 831
schultei 166
scutatus 1002
toftae 1002
variabilis 1002
ventrimarmoratus 1002–1005
Elops 13, 18
Emblemaria hypacanthus 378
Emmelichthyidae 1028
Emmelichthys 1028
Engraulis mordax 1064
Engyophrys sanctilaurenti 1078, 1079
Eomola 1014–1022
bimaxillaria 1014–1022
Epicrates inornatus 62
Epipedobates femoralis 895
Eretmochelys imbricata 907
Erimyzon oblongus 301
Erythrocles 1028–1031
schlegeli 1029–1031
scintillans 1029–1031
taeniatus 1029–1031
Esocae 351, 360
Esox 11
Etheostoma 535, 537, 615, 637, 668, 987–990, 992, 995–998
(Allohistium) 535, 996
(Ammocrypta) 989, 998
asprigene 301
bellum 668
(Belophlox) 79, 996
(Boleosoma) 615, 989, 995, 996
caeruleum 301
camurum 668, 992
(Catonotus) 615, 623, 624, 996
chienenense 617–644
chlorosomum 301, 539, 999
cinereum 535–537, 995
collettei 301
coosae 539
corona 617–623, 627–644
crossopterus 616–644
(Doration) 539, 989, 996
davisoni 537, 539
ditrema 539
(Etheostoma) 995, 996
flabellare 616, 623, 627, 668
forbesi 617–644
(Fuscatelum) 637, 996
gracile 297, 535, 537
(Hololepis) 996
inscriptum 79
(Ioa) 996, 999
jordani 668
(Litocara) 995, 996
mariae 79
(Microperca) 996
moorei 301
neopterus 616–644
nigripinne 616–644
nigrum 535, 536, 668
(Nothonotus) 535, 615, 658, 668, 995, 996
(Oligocephalus) 535, 615, 637, 995, 996
olivaceum 617–644
oophylax 617–644
(Ozarka) 996
parvipinne 637
pseudovulatum 617–644
(Psychromaster) 637, 996
punctulatum 301
pyrrhogaster 539
radiusum 301
rubrum 658–670
sagitta 994
spectabile 535, 536, 615
squamiceps 616–644
stigmaeum 539
swaini 999
swannanoa 79
thalassinum 79
tippecanoe 668
tuscumbia 637
(Ulocentra) 989
(Vaillantia) 539, 989, 995, 996
(Villora) 996
virgatum 616, 623, 637
vitreum 992, 998
zonale 301
zonatum 301
Etheostomatinae 987, 988
Etheostomatini 987–989, 997, 998

- Etmopterus lucifer* 466
Etropus crossotus 1079
 Euclichthyidae 596
Eucirrichthys 175
Eugomphodus taurus 465, 466
Eumeces
 laticeps 150
 lynceum 404-411
Eurycea bislineata 777
Eurycheilus 215-217, 221, 222
 pantherinus 215-222
Eurypterygii 8-19
Euteleostei 351
Evermannellidae 9, 14
Exerpes asper 378, 388
Exoglossum maxillingua 751
- Frostius 170
Fundulidae 1044
Fundulus 748-753
 albineatus 921
 auroguttatus 749, 757, 758
 bifax 755
 chrysotus 747-758
 cingulatus 747-758
 confluentus 751, 1044
 diaphanus 751
 dispar 751
 escambiae 751, 756
 heteroclitus 751
 julisia 921
 lineolatus 748, 751, 752
 luciae 748
 notti 301, 751
 pulvereus 1044
 rubrifrons 749, 757, 758
 stellifer 755
 zonifer 748
- Gadidae* 596, 1088, 1093
Gadiformes 596, 597
Gadus 1088-1093
Gaidropsarus 596
Galaxias 18
Galaxioidea 351
Gallotia galloti 1119
Gambusia
 affinis 99, 783
 holbrooki 94, 101
Gasterosteidae 209
Gasterosteus 210-213, 437
 aculeatus 209-213, 432-441, 1080
 a. microcephalus 439
 wheatlandi 211, 213, 433-441
Gaudryella 13
Gavialis 243
 gangeticus 241, 242
Gehyra 445, 454
 marginata 445, 447, 451, 452
- membranacruralis* 451
 oceanica 443-457
 vorax 443-457
Gekko mindorensis 593
Gekkonidae 443
Gekkota 564
Gempylidae 882, 885
Genypterus capensis 812
Geochelone
 carbonaria 587
 gigantea 370
Geotrypetidae 706
Gerrhosauridae 152
Gerrhosaurus
 nigrolineatus 146-152
 validus 152
Gibberichthys 16
Gibbonsia 375, 377, 381, 384, 389
 elegans 377-390
 erythra 378
 metzi 377-390
 montereyensis 377-390
 norae 378
Gila 540, 920
 atraria 541
 bicolor 539-542
 b. oregonensis 540
 cypha 543
 ditaenia 697-703
 eremica 697-703
 intermedia 698-700
 purpurea 698-700
 sp. 697-702
Girardinus 474-476
 creolus 474-476
 cubensis 475
 denticulatus 475, 476
 falcatus 475, 476
 metallicus 475, 476
 microdactylus 475, 476
 serripennis 474
 uninotatus 475, 476
Glossanodon 352-355
 pygmaeus 353
Glyptocephalus zachirus 1095
Gnathodentex 262
Gobioidei 253, 255
Gobiomorus dormitor 981
Goeldiella eques 140
Gonostoma elongatum 354
Gopherus 368, 372
 agassizii 367
 berlandieri 371
 polyphemus 370
Grammistes 999
Gulaphallus 255
Gurgesiella 839, 842, 843
(Fenestruja) 839, 843
(Gurgesiella) 839
Gymnarchirus
 melas 1044

- nudis* 1044
texae 1044
Gymnocephalus 987–990, 992, 997, 998
cernuus 991
schraetser 993
Gymnocranius 262
euanus 262
grandoculis 262
Gymnodactylus 592
Gymnomuraena zebra 198, 204
Gymnopis 706
multiplicata 706
oligozona 706
syntrema 706
Gymnophthalmidae 564
Gymnothorax 199, 201
buroensis 198
enigmaticus 198
fimbriatus 198, 203, 204
flavimarginatus 197, 198, 204, 205
gracilicauda 197, 198, 200–207
hepaticus 198, 202
javanicus 197
margaritophorus 198
melatrema 197, 198, 203, 207
meleagris 198, 203
nigromarginatus 1043
nudiomer 198
ocellatus 1043
richardsoni 198
saxicola 1043
undulatus 197, 198, 207
zonipetis 198

Halichoeres bivittatus 916
Harpadon 19, 21
Harpadontidae 9
Helminthophis 1104
Helodermatidae 147, 150
Hemipteronotus 1053
Hemisorubim platyrhynchos 140
Heptranchias 516
Heterodon 62
Heterodontus 505, 506
zebra 509
Heterostichus 377, 384, 389
rostratus 375–390
whiteleggei 378–384
Hexanchoides 507
Hexanchus 516
Histrio histrio 247, 248
Hoplias 783, 789
malabaricus 783, 1071
Humbertia 13
Hybodius cassagensis 508
Hybognathus 36–42
amarus 36–42
argyritis 36–42
hankinsoni 36–42
hayi 36, 42

nuchalis 36–42
placitus 36–42
regius 36
Hybopsis
amblops 301
Hydromantes 590
Hydrophlox 68, 78, 341
Hyla 33, 581, 582, 590, 896
boans 1120, 1122
chrysoscelis 565–568
circumdata 1122
crepitans 1122
crucifer 33, 566, 608
eximia 608–612
faber 1122
pardalis 1122
pugnax 1122
regilla 578–583
rosenbergi 1122
versicolor 566–568
Hylidae 187, 1120
Hynobiidae 130
Hynobius leechi 130
Hypentelium nigricans 301
Hyperolius marmoratus 1111, 1112
Hypomesus 355
Hypophthalmidae 139
Hypophthalmus 139
Hypoplectrus 996
Hypoptopoma 215, 221
Hypoptopomatinae 215–221
Hypoptopomatini 221
Hypsypops rubicundus 1080, 1081

Ichthyophiidae 706
Ictalurus furcatus 300, 301
Ictiobus bubalus 300
Iguana iguana 851
Iguania 563
Iguanidae 82, 492, 563
Imparfinis minutus 140
Inermiidae 1028
Iniomi 357
Ipnopidae 9
Ipnotis 18
Isistius 513
Isospondyli 357

Janassa 515

Labridae 916, 1053
Labrisomidae 375–377, 384–388
Labrisomini 378
Labrisomus
pomaspilus 774
xanti 378
Lacerta vivipara 695
Lacertoidea 564

- Lacertidae 147, 564
Lagocephalus scleratus 882
Lagodon rhomboides 1059-1061
Lamna 1085
 cornubica 465
Lamnoidei 507
Lampetra
 ayresi 192-196
 richardsoni 191-196
Lampropeltis smaragdina 591
Latimeria 926, 927
 chalumnae 926, 1083
Lebistes reticulatus 1060
Lefua nikonis 223
Leiocephalus 587
Lepidocephalicthys pristis 259
Lepidocephalus spectrum 259
Lepidochelys olivacea 51
Lepidodactylus lugubris 452
Lepidogalaxias 11, 12, 359
Lepidophyma 563, 564
 flavimaculatum 563
Lepisosteus 11
Lepomis
 cyanellus 301, 468, 469
 cyanellus × *gibbosus* 923
 macrochirus 544, 545
Lepophidiini 813
Lepophidium 811, 813
 cervinum 808
 jeannae 799, 811, 813
 negropinna 799
 profundorum 800-814
 staurophor 799, 813
Leptoichthyidae 359
Leptoichthys 352, 353, 358, 359
Leptodactylidae 584, 826, 1002
Leptodactylus
 fuscus 584
 knudseni 895, 896
 labialis 584
 rhodomystax 895, 896
Leptoderma 352-357
 macrops 355
Leptognathus
 annulatus 424
 dimidiatus 424
 pictiventris 426
Leptolepis 13
Leptotyphlops 1104
Lepturophis borneensis 586
Lestidium 13
Lethrinidae 261
Lethrinus 262
 chrysostomus 262
 elongatus 262
 erythracanthus 262
 erythropterus 262
 genivittatus 262
 hypslepterus 262
 hallopterus 262
 lentjan 262
 microdon 262
 miniatus 262
 obsoletus 262
 olivaceus 262
 ornatus 262
 ramak 262
Leucoparion 253
Liparididae 261
Lissamphibia 887
Litoria
 longirostris 1120, 1122
 lesueuri 1120, 1122
Lonchopisthus 1046
Lophiiformes 247
Loricariidae 215
Lucioperini 987, 998
Lutjanidae 914
Luxilus 306-308, 313, 318, 332-341
 albeolus 306-316, 319, 332-340
 cardinalis 307-319, 333-340
 cerasinus 306-319, 333-341
 chrysocephalus 307, 308, 311, 318, 319, 333, 334, 339, 340
 c. chrysocephalus 306-319, 333-337, 921
 c. isolepis 306-319, 333-338, 921
 coccogenis 306-319, 333-341, 898
 cornutus 306-318, 333-341
 c. chrysocephalus 307, 308
 c. cornutus 307, 319
 isolepis 307
 pilsbryi 301, 307-319, 333-340
 zonatus 306-318, 333-341
 z. pilsbryi 307
 z. zonatus 307
 zonistius 306-316
Lyrolepis caucasica 1014
Lythrurus 338, 339
 atherinoides 300, 301
 umbratilis 301

Macrhybopsis storeriana 300
Macrouridae 596, 597, 882, 885
Malacoctenus gigas 378
Malacoraja 839, 843
Mallotus 355
Malpolon monspessulanus 65, 244
Masticophis taeniatus 576
Masturus 1021
 lanceolatus 1019, 1020
Mauroliscus mulleri 12
Melanonidae 596, 597
Melanophryniscus 170
Melanosuchus 241
Melanotenidia 258
Membras bonaparte 55
Menidia 55, 59, 258
 beryllina 16, 53-60

- beryllina* × *peninsulae* 59
menidia 489
peninsulae 59
Menippe
adina 1044
mercenaria 1044
 Merlucciidae 596
Mesopeltis longifrenis 421
Micrognathus 359
Microlepidogaster 221
Micropterus 991
dolomieu 991, 993
salmoides 1036
Microscyllium sheikoi 510
Microstoma 355
 Microstomatidae 351, 356–358
Minascaecilia 706
Misgurnus anguillicaudatus 224
Mniirpes macrocephalus 378
Mola 1014, 1021
mola 1018–1020
 Molidae 1014, 1021
Monolene asadai 1079
Monopterus albus 207
Monotaxis 262
Moringa abbreviata 198
Morone 553, 558, 989, 992, 999, 1000
americana 17, 22, 553
chrysops 300, 301, 553–558, 991, 992
chrysops × *mississippiensis* 554–558
mississippiensis 553–558
saxatilis 23, 553, 992–995, 1037
 Moronidae 989
Moxostoma aureolum 751
 Moxostomatini 935
 Mullidae 914
Mulloidies martinicus 914
Mullus 253
Muraena
helaena 197–205
polyodon 198
pavonina 204, 205, 198
tile 198
 Muraenidae 197, 1043
 Muraenolepididae 596
Muraenolepis 597
 Myctophidae 9, 19, 154, 261
 Myctophiformes 8, 9, 12–20
Myctophum 13
Myxocyprinus asiaticus 935
Myxodes 377
cristatus 377
ornatus 377
viridis 377–388
 Myxodini 375–378

 Nandidae 986
Nansenia 355
Narcetes 352, 353

Narcine
maculata 515
timlei 510
Natrix 245
sipedon 65
tessellata 245
Necturus 234
 Neoclinini 378
Neoclinus blanchardi 378
Neonesthes 15
Neoraja 839, 843, 844
subtilispinosa 843, 844
tobitukai 843, 844
 Neoscolopidae 9, 19
Neoscolopelus 13, 18, 19
macrolepidotus 16
 Neoteleostei 8–11, 351–354, 360
Nerodia 1104
rhombifer 576, 1096–1098
sipedon 65
Noemacheilus montanus 223
Normanichthys 18
Notechis scutatus-ater 1129
Notophthalmus viridescens 469, 608, 732
 Nototheniidae 559
Notothenina 561
angustata 561
Notropis 306, 307, 338, 339
blennioides 300, 301
boops 301
buchanani 300, 301
chlorocephalus 68–80
chrosomus 954
dorsalis 339
greenei 339
(Hydrophox) 954
leuciodus 341, 954–968
ludibundus 339
lutipinnis 68–80
nubilus 301, 341, 954
orca 42
potteri 300
rubricroceus 68, 955–958
shumardi 300
simus 42
sp. 1033
stramineus 339
telescopus 301
texanus 339
volucellus 339
Noturus 79
nocturnus 301
Novaculichthys taeniourus 1058

Ocyurus chrysurus 914
 Ogcocephalidae 1044
 Ogcocephalus
cubifrons 1044
declivirostris 1044

pantostictus 1044
parvus 1044
 Omosudidae 9
Omosudis 14, 18
Oncorhynchus
 clarki henshawi 935
 nerka 1037
Opheodrys aestivus 576, 1128, 1129
 Ophichthidae 1044
 Ophichlini 375, 378, 385, 388
 Ophidiidae 799
 Ophidiinae 800
Ophidion 800, 802, 806, 811, 813
 barbatum 812
 holbrooki 801
 marginatum 800–814
 nocomis 799, 801
 robinsi 800–813
 scrippsae 812
 selenops 799, 801, 814
 welshi 801
 Opisthognathidae 1046
Opisthognathus 1046
 maxillosus 1046–1052
 whitehurstii 1046–1052
 Opisthoproctidae 351, 356–358
Opisthoproctus 352–355
Opsopoeodus 338, 339
Orectolobus japonicus 510
Oreophrynella 170
Osmerae 351–360
Osmeroidea 351
Osmeroidei 351, 353, 354
Osmerus 355
Osornophryne 170
Ostariophysi 351, 360
Osteichthyes 882
Osteocephalus taurinus 894, 895
Osteolaemus 241, 243
Otocinclus 221
Otophidium omostigmum 799, 801, 805
Otothyriini 215, 221
Otothyris 215, 221, 222
Oxyjulis californica 1083
Oxyropsis 221

Pagothenia borchgrevinkii 559, 561
Paleosuchus 241
Pangio 175
Pantodon 11
Pantosteus 939
 Paraclinini 378
Paraclinus
 integripinnis 378–381
 sini 378

Paralabrax 996
 Paralepididae 14

Paralichthys
 californicus 1095
 dentatus 120–127
Parapimelodus 138–141, 145
 nigribarbis 138–146
 valenciennisi 138–146
Parasudis 14
 truculentus 16
Parophidion 812
Parotocinclus 215–221
 collinsae 222
Pavoraja
 (Insentiraja) 840–849
 laxipella 840–849
 (Pavoraja) 839, 840
Peltophryne 170, 587
Perca 987–998
 flavescens 535–537, 859–865, 989, 991
Percarina 987, 988
 demidoffi 989
 Percichthyidae 986
 Percidae 859, 986, 987
 Perciformes 986
Percina 535–537, 639
 (Alvordius) 996
 caprodes 535, 536
 copelandi 995
 (Cottogaster) 995, 996
 (Ericosma) 996
 evides 535, 536
 (Hadropterus) 996
 (Hypohomus) 995, 996
 (Imostoma) 996
 macrocephala 996
 nigrofasciata 994
 notogramma 994
 (Odontopholis) 996
 oxyrhynchus 999
 (Percina) 996
 sciara 301, 535, 536
 (Swainia) 996
 Percinae 988
 Percini 987, 988, 997, 998
 Percoidei 986, 987
Percopsis 14, 18
 omiscomaycus 15, 989
Periophthalmodon schlosseri 1009, 1010
Periophthalmus sobrinus 1012
Perissias taeniopterus 1077
Phenacobius mirabilis 751
Phenacostethus
 posthon 184
 trewavasae 184
Pholidophorus 13
Phoxinus oreas 549–552
P. oreas × *Semotilus atromaculatus* 548–552
Phrynosoma 519, 520, 525
 cornutum 519–525
 solare 519, 525
 Phrynosomatidae 147

- Phyllodytes* 187
 acuminatus 187, 189
 auratus 187
 brevirostris 187
 kautskyi 187
 luteolus 187
 melanomystax 187–190
 tuberculosus 187, 189
Phyllomedusa
 bicolor 895
 tarsius 895
 tomopterna 895
 vaillanti 725
Physalaemus pustulosus 655
Pimelodinae 139
Pimelodus 141
 altissimus 141
 blochii 141
 nigribarbis 138, 144
 paranensis 140, 141
 valenciennisi 138, 139, 144
Pimephales 37, 39, 42, 338, 339
 notatus 308–313
 promelas 37–41
Pipa 895, 896
 arrabali 895–897
Pisces 154, 197, 559, 1039
Pituophis melanoleucus 576
Plagiogeneion 1028
Platyroctidae 357–359
Plecoglossus 355
Plethodon cinereus 113–118, 235–237, 776–781
Plethodontidae 235
Pleuragramma 559–561
 antarcticum 559
Pleurotremata 506
Poecilia 788
 branneri 789
 gillii 908–913
 latipinna 741–743
 picta 782–789
 reticulata 675, 782, 786
Poeciliidae 782
Poeciliini 788
Poeciliopsis 323, 701
 monacha-occidentalis 701
 occidentalis 701
Polycentrus 783
 schomburgkii 783
Polychridae 147
Polymixia 16, 18
Pomacentridae 1080
Pomoxis
 annularis 1033
 nigromaculatus 999
Priapella 788
 bonita 789
Prionotus 1043, 1044
 alatus 1039–1044
 alatus × *paralatus* 1040
 beanii 1039
 paralatus 1039–1044
Pristiophoridae 507, 508, 513
Pristiophorus
 cirratus 510, 512
 japonicus 509
 nudipinnis 511, 513, 515
Pronotogrammus aureorubens 16
Proscyllium venustum 508, 511
Prototroctes 355
Psettodes 18
Pseudacris 33
 crucifer 33, 732
 triseriata 566
Pseudemys
 scripta 371
Pseudoechidna brummeri 198
Pseudoraja 842
Pseudotocinclus 215, 221, 222
Pseudotothyris 215, 221, 222
Pseudotriakidae 460, 879
Pseudotriakis 460, 877
 acrales 460, 879–883
 acrages 877
 microdon 460–467, 877–885
Pseudotrichonotidae 9
Pseudotrichonotus 9, 21
 altivelis 8
Pungitius 210–213
 occidentalis 209–213
 pungitius 209, 210, 213
 sinensis 209–213

Quintana 474–476
 atrizona 476

Rajidae 842
Rajiformes 507, 509, 513
Rajoides 839
Rana 581, 582, 677
 (Babina) 1126
 blythi 1123–1126
 cascaadae 578–583
 catesbiana 135, 469
 clamitans 725–739
 pipiens 738, 766
 sylvatica 566
Ranzania 1021
 laevis 1019, 1020
Reptilia 492
Retrophinna 249
 retrophinna 354
Rhabdophis tigrinus 795
Rhacodactylus 451, 457
Rhacophorus 887, 889
 gauni 888, 889
Rhamphophryne 165, 170
Rhina 515

- Rhinichthys*
atratus 549, 669
osculus 533
o. thermalis 528-534
o. yarrowi 528-534
Rhinobatos hynnicephalus 509
Rhinomuraena 197, 204, 205
Rhinospotus 154
Rhyacichthys 17
Rhynchobatus 515
Rhynchoconger
flavus 1044
gracilior 1044
guppyi 1044
Ribeiroclinus 377
eigenmanni 377
Rinocetes 359
Rivulus 784-789
harti 784
Roeboides dayi 783
Romanichthyini 987, 988, 997, 998
Romanichthys 987-990, 992-995, 997, 998
valsanicola 989, 991, 993
Rondeletia 16
Rouleina 352, 353
- Sagamichthys abei* 354, 355
Salamandra atra 1085
Salmo
salar 16, 669
trutta 249, 669, 1060
Salmonae 360
Salmonidae 351, 352, 360
Salvelinus 533
fontinalis 354
namaycush 533
Sauria 82, 968, 1114
Saurida 21
Scaphiopus couchii 766
Scapulus acanthias 512
Sceloporus virgatus 401
Schizolepis 215, 221, 222
Scincidae 147, 564, 591
Scincoidea 564, 591
Scincomorpha 564
Scincus smaragdinus 591
Scopelarchidae 9
Scopelarchoides 19
Scopelosauridae 9
Scorpaeniformes 485
Scyliorhinus retifer 251-253
Searsia 350, 355, 357
koefoedi 355
Searsiidae 357, 358
Selachioidei 506
Semotilus 551
atromaculatus 548-552, 669
lumbae 79
Serrasalminae 108
Serrasalmus spilopleura 108-112
- Setarches guentheri* 16
Sibon 421-427
annulatus 423-431
anthracops 430
argus 421-431
dimidiatus 423-431
d. dimidiatus 424
d. grandoculis 424
longifrenis 421-431
nebulatus 431
Sibynomorphus 422
Siderea 197, 201, 206, 207
grisea 197-207
picta 198, 204, 206
thyroidea 198
thyrozoidea 204
Siluriformes 1084
Siluroidei 215
Soleidae 1044
Solivomer 13
arenidens 22
Sorubim 140
lima 140
Sparidae 1044
Sphaerodactylus 587
Sphoeroides
maculatus 1044
nepheus 1044
parvus 1044
Spirinchus 355
Squaloidei 507
Squalus 512, 516
acanthias 466
Squatina 505-516
africana 510
japonica 509, 511, 512
nebulosa 511, 512, 515
Squatinae 515
Squatinae 505
Squatinae 515
Stalix 1046
Starksiini 378
Stephanobryx 16
Stizostedion 537
canadense 300, 301, 535, 536
vitreum 533, 535, 536
Stomiiformes 9
Storeria occipitomaculata 1097
Syacium
latifrons 1079
ovale 1079, 1080
Synbranchidae 885
Synbranchiformes 208
Synbranchus marmoratus 783
Synodontidae 9, 14
Synodus 13-21
- Taenioconger klausewitzi* 1057
Talismania 352-358
bifurcata 353, 355
Tanakius kitaharae 1095

- Tantilla* 1104
coronata 1103–1106
Taricha torosa 134
Teiidae 147, 563, 564
Teleostei 223, 769, 799, 917, 954, 986, 1053, 1066
Terrapene 372
carolina 370, 566
ornata 370
Tetraodon 259
Tetraodontidae 1021, 1044
Tetraodontiformes 1014, 1021
Thaleichthys 355
Thamnaconus tessellatus 1031
Thamnophis 62, 150, 245, 574, 1104
brachystoma 1129
elegans 1106
marcianus 573–576
melanogaster 575
proximus 576
radix 1129
sirtalis 65, 566, 573–576, 795, 797, 1096, 1104
Tharsis 13
Thorophos 15
Thunnus abchasicus 1014
Tomistoma 241, 243
schlegelii 241, 242
Torpedo tokionis 509, 511
Toxus
creolus 474
serripenis 474
Trachinocephalus 11, 19, 21
myops 22
Trematomus 561
bernacchii 561
Triglidae 1039
Trimeresurus
punicus 586
wiroi 586
Triodontidae 1021
Tripterygiidae 375, 388
Triturus 590
Tropidodipsas 422, 423
Tropidophiidae 820
Tropidophis 820–824
battersbyi 824
canus 822–824
caymanensis 820–824
feicki 820–824
fuscus 820–824
greenwayi 820, 823, 824
haetianus 820–823
maculatus 820–824
melanurus 820–824
nigriventris 821–824
n. hardyi 821
pardalis 821–824
paucisquamis 822, 824
pilsbryi 820–824
p. galacelidus 820
p. pilsbryi 821
semicinctus 820–824
taczanowski 822, 824
wrightii 820–824
Typhlops 1104
Uropterygius
fasciolatus 198, 204
polyspilos 198, 202, 204
Urotyphlopidae 706
Uta stansburiana 691, 692, 695
Varanidae 147, 150
Varanus 344
acanthurus 348
albigularis 347
bengalensis 102–106, 344, 348, 349
exanthematicus 147, 346–349
giganteus 105, 348
gouldii 105, 343–349
griseus 105
komodoensis 105
panoptes 343–349
p. rubidus 349
rosenbergi 105, 344, 348
salvator 102–106, 347
varius 105
Velifer 19
Vipera 1104
berus 1127, 1129
Viperidae 791
Wattisia 262
Xanthidae 1044
Xantusia 563, 564
Xantusiidae 563–565
Xenisma catenatum 753
Xenochrophis piscator 1026
Xenopus 590, 766, 893
laevis 117, 890–893
Xerobates agassizii 237, 238
Xiphophorus 788, 981, 1075
multilineatus 1074–1076
nigrens 980–986, 1074–1076
pygmaeus 1074–1076
Xyrauchen texanus 940
Xyrichtys 1053, 1054, 1058
pentadactylus 1057
victori 1053–1058
Zameus squamulosus 508
Zingel 987–990, 992–998
streber 991, 994, 995
zingel 991, 994, 998, 999
Zygonectes 748
auroguttatus 748, 752–755
henshalli 754
rubrifrons 748, 752–755

SUBJECT INDEX

COPEIA, 1992, Nos. 1-4

- ACTIVITY**, *Rana (pipiens, sylvatica)* (intersp. diff., larv.) 26-35; *Caretta caretta*, *Chelonia mydas*, *Dermochelys coriacea* (posthatch. swimming "frenzy", diel cycles) 478-484; *Crotaphytus collaris* (red. ann. act. cycle in periph. popn.) 968-980; *Clemmys muhlenbergii* (seas. & sex diffs. in dist. moved) 1107-1111.
- AGE**, *Gopherus agassizii* (longev., age-size rels., compar. popns.) 367-374.
- BEHAVIOR**, *Bufo americanus* (calls, mate pref.) 1-7; *Plethodon cinereus* (sex. dimorph., rel. to vomeronas. organ.) 113-120; *Gerrhosaurus nigrolineatus* (chemosen., pred.) 146-154; *Dipsosaurus dorsalis* (femoral gland secr. & discrim.) 229-232; *Cnemidophorus (tesselatus, marmoratus)* (diff. btwn. parthenogen. & sex. spp. in escape beh.) 323-331; *Ambystoma barbouri* (egg-laying site choice) 468-473; *Caretta caretta*, *Chelonia mydas*, *Dermochelys coriacea* (posthatch. swimming "frenzy") 478-484; *Cottus bairdi* (prey detect., lat. line sensitiv., dev. changes) 485-492; *Anolis carolinensis* (mechanics of jumping) 492-504; *Phrynosoma cornutum* (blood-squirting as pred. defense) 519-527; *Etheostoma davisoni* (spawning & egg-attaching beh.) 537-539; *Phoxinus oreas* × *Semotilus atromaculatus* (of natural hybrid, repro. beh. leads to hybridiz.) 548-553; *Pagothermia borghgrencinki* (social coop. in tearing large prey) 559-562; *Eleutherodactylus johnstonei* (individ. mvmnts., distance) 569-573; *Thamnophis marcianus*, *Elaphe guttata* (mating beh. timing) 573-577; *Bufo valliceps* (calls, mating beh.) 647-658; *Ambystoma tigrinum melanostictum* (feeding beh., diffs. btwn. cannibal. & non-cannibal. morphs) 672-679; *Carcharodon carcharias* (pred. pattns., stalking) 680-690; *Bufo* (27 spp.) (cutan. water uptake, rel. to abdom. cutan. muscles) 760-769; *Plethodon cinereus* (territ. pheromone resp. & marking beh.) 776-781; *Ophidion marginatum* (mating) 799-819; *Cichlasoma nigrofasciatum* (parental beh. resp. to pred. mod. by low-pH stress) 832-839; *Bufo woodhousei* (microhab. choice as thermoreg. beh.) 865-876; *Xenopus laevis* (tdpl. swim ascent & descent mech.) 890-894; *Clinostomus funduloides*, *Oncorhynchus mykiss*, *Luxilus coccogenis*, *Semotilus atromaculatus*, *Notropis leuciodus* (interspp. interact. in foraging groups) 898-902; *Amphiprion* (melanopom., akindynos, percula, perideraion), *Premnas biaculeatus* (fish protect anemone host from pred.) 902-908; *Mulloidies martinicus*, *Ocyurus chrysurus* (aggres. mimics) 914-917; *Xiphophorus nigrensis* (mating beh., sex. select.) 980-986; *Pomoxis annularis* (change in swim. mode aff. swim. effic.) 1033-1038; *Xyrichtys victori* n. sp. (soc. beh. of genus rel. to indiv. var. in male color) 1053-1059; *Hypospops rubicundus* (color cues in territor.) 1080-1084; *Bagrus meridionalis* (parent. beh., fry feed on trophic eggs) 1084-1088; *Hyperolius marmoratus* (male calls & female pref.) 1111-1114; *Litoria lesueuri* (aggres. of larv. in & near nests) 1120-1123; *Rana blythi* (courting, nest-building, vocs.) 1123-1127.
- BLOOD**, *Xerobates agassizii* (method of sampling, handling & testing in field) 237-241; *Phrynosoma cornutum* (blood-squirting as pred. defense) 519-527; *Uta stansburiana* (egg mass correl. with plasma glucocorticoid) 691-697; *Crocodylus niloticus* (levels of testost., thyrox., Ca & hematocrit) 1023-1027; *Chelonia mydas* (testost. levels in wild juvs.) 1098-1103.
- CALLS**, *Bufo americanus* (descrip., rel. to body size) 1-7; *Phyllodytes melanomystax* n. sp. (descript.) 37-191; *Bufo valliceps* (chorus organiz., mating system) 647-658; *Hyperolius marmoratus* (male calls & female pref.) 1111-1114; *Litoria lesueuri* (near nests) 1120-1123; *Rana blythi* (female voc., rel. to nesting) 1123-1127.
- CANNIBALISM**, *Pseudotriakis microdon* (embryo oophagy in utero) 460-468; *Ambystoma tigrinum melanostictum* (diffs. btwn. cannibal. & non-cannibal. morphs) 672-679.
- CHROMOSOMES**, *Serrasalmus spilopleura* (kar., NORs, 2 forms, hybrid.) 108-112; *Basilichthys (microlepidotus, australis)* (kar.) 256-258; *Cnemidophorus (tesselatus, marmoratus)* (polyploid parthenogen. sp., genet. disfunctions) 323-331; *Luxilus* (all spp. & subsp.) (phylogen. anal., NOR & serial band data) 332-343; *Cricosaura typica* (kar., phylogen. anal.) 563-565.
- COLORATION**, *Mulloidies martinicus*, *Ocyurus chrysurus* (in aggres. mimicry) 914-917; *Xyrichtys victori* n. sp. (sex. dimorph., male indiv. var. rel. to territor.) 1053-1059; *Citharichthys platyphrys*, *Engyphrys sanctilaurenti*, *Monolene asadai*, *Etropus crosotus*, *Syacium ovale* (sex. dimorph.) 1077-1080; *Hypospops rubicundus* (color cues in territor.) 1080-1084.
- COMPETITION**, *Rana (pipiens, sylvatica)* (btwn. larv.) 26-35; *Anolis* (13 spp., Lesser Antilles) (eff. of size diffs. on evol.) 279-288, 288-295; *Hyla eximia*, *Ambystoma tigrinum nebulosum* (aff. on pred.-prey interact. when hab. complx. var.) 607-614; *Bufo valliceps* (in mating) 647-658; *Clinostomus funduloides*, *Oncorhynchus mykiss*, *Luxilus coccogenis*, *Semotilus atromaculatus*, *Notropis leuciodus* (compet. interact. in foraging) 898-902; *Mulloidies martinicus*, *Ocyurus chrysurus* (btwn. individs. of aggres.

- mimics) 914-917; *Xiphophorus nigrensis* (male compet. rel. to sex. select.) 980-986.
- DENTITION**, *Gila bicolor* (fossil evid. for endemism) 539-544; *Ambystoma tigrinum melanostictum* (vomarine teeth aid prey-handl. in cannibal morphs) 672-679.
- DEVELOPMENT**, *Gambusia holbrooki* (under temper. stress) 94-102; *Bombina orientalis* (eff. of larv. tail-injury) 129-137; *Pungitius occidentalis* (paedomorph. in lateral plate dev.) 209-214; *Cobitis taenia* (gonad dev. anat., sex diff.) 223-228; *Etheostoma lyncem* (of eggs, factors import. in egg-size assess.) 404-412; *Pseudotriakis microdon* (embryo in utero, oophagy) 460-468; *Cottus bairdi* (of lat. line, dev. changes in prey detect.) 485-492; *Poecilia picta* (mode of embryo dev.) 782-790; *Ophidion (robinsi n. sp., marginatum)*, *Lepophidium profundorum* (larv.) 799-819; *Iguana iguana* (mineral sources & hydric var. in embryo. dev.) 851-858; *Rhacophorus gauni* (of wild tdpis., exotroph. & endotroph. morphs) 887-890.
- DIGESTION**, *Alsophis portoricensis* (by venom) 62-68.
- DIGESTIVE TRACT**, *Pseudotriakis microdon* (of embryo in utero, oophagy) 460-468; *Lepomis macrochirus* (function of caeca) 544-547.
- DISTRIBUTION**, *Notropis (chlorocephalus, lutipinnis* [3 forms]) 68-81; *Centrobranchus nigroocellatus* (including *C. choerocephalus* and *C. brevirostris*) (worldwide marine) 154-161; *Bufo (arborescens n. sp., veraguensis group)* 162-172; *Acanthophtalmus (kuhlü, cuneovirgatus, agmus n. sp.)* 172-186; *Histrio histrio* (confirmed in E. Pacific) 247-248; Arkansas stream fishes (165 spp.) (correl. btwn. fish dist. & water qual. variables) 296-305; Clinidae, Labrisomidae 375-392; *Sibon (argus, longifrenis, annulatus, dimidiatus)* (some sympatry) 421-432; *Gasterosteus aculeatus* (2 forms) 432-443; *Gehyra (vorax* [3 forms], *oceanica* [3 forms]) (human transport in island coloniz.) 443-460; *Etheostoma (olivaceum, nigripinne, forbesi n. sp., corona n. sp., crossopterygum, squamiceps, chienense n. sp., pseudovulvatum n. sp., neopterygum, oophylax n. sp.)* 615-646; *Etheostoma rubrum* (endemic to one river) 658-671; *Gila (ditaenia, sp., ditaenia × sp.)* 697-703; *Ctenopoma (petherici, kingsleyae, nebulosum)* 709-724; *Fundulus (cingulatus = auroguttatus & rubrifrons)* (in Florida) 747-759; *Ehemblemaria (lira n. sp., nigra, myersi)* 769-776; *Ophidion (robinsi n. sp., marginatum)*, *Lepophidium profundorum* (larv., seas. var.) 799-819; *Osteocephalus taurinus*, *Pipa arrabali* (pred. presence aff. microdistrib. of prey) 894-897; *Anolis sagrei* (phenetic changes & var. in coloniz. sp.) 935-941; *Notropis leuciodus* (clad. anal. of popns., biogeogr. explan. of distr.) 954-968; *Eleutherodactylus eurydactylus n. sp.* (very limited) 1002-1006; *Prionotus (alatus, paralatus, alatus × paralatus)* (hybridiz. in vicariant zone and in 13 other clades in same area) 1039-1046; *Xyrichtys victori n. sp.* (limited distr. of n. sp. compar. to congeners) 1053-1059; *Barisia rudicollis* 1114-1117.
- DUVERNOY'S GLAND**, *Alsophis portoricensis* (digest. funct. of venom) 62-68; *Malpolon monspessulanus*, *Natrix tessellata* (method to collect secr.) 244-246; *Boiga irregularis* (histol. & histochem.) 791-799.
- ECOLOGY**, *Chelonia mydas*, *Eretmochelys imbricata* (nest placement) 45-53; *Menidia beryllina* (reprod.) 53-61; *Cophosaurus texanus* (energy-limited popn.) 82-93; *Varanus (bengalensis, salvator)* (water influx & met. rates rel. to hab.) 102-107; *Paralichthys dentatus* (of young-of-yr.) 120-128; Arkansas stream fishes (165 spp.) (correl. btwn. fish distrib. & water qual. variables) 296-305; *Anolis (stratulus, gundlachi, evermanni)* (popn. dens., wet & dry seas. diffs., 3-dimen. hab., perch size) 392-403; *Bufo periglenes* (popn. decline in pristine trop. area) 413-420; *Rhinichthys (osculus thermalis, o. yarrowi)* (therm. toler. of subspp. with diff. therm. habs.) 528-535; *Hyla chrysoscelis* (freeze-toler., overwinter adapt.) 565-569; *Hyla eximia*, *Ambystoma tigrinum nebulosum* (pred.-prey interact. when hab. complx. var.) 607-614; *Etheostoma rubrum* (microhab. dynamics in wild & lab.) 658-671; *Ambystoma tigrinum melanostictum* (trophic polymorph.) 672-679; *Perca flavescens* (salin. toler. of eggs & larv. in lab compare to wild condits.) 859-865; *Bufo woodhousei* (interact. of food avail. & hydric condit. with thermoreg. beh.) 865-876; *Osteocephalus taurinus*, *Pipa arrabali* (pred. presence aff. microdistrib. of prey) 894-897; *Clinostomus funduloides*, *Oncorhynchus mykiss*, *Lucilus cocogenis*, *Semotilus atromaculatus*, *Notropis leuciodus* (compet. interact. in foraging) 898-902; *Crotaphytus collaris* (life hist. evid. of stress in periph. popn., deterior. environ.) 968-980; *Lagodon rhomboides* (compare low temper. toler. in lab and wild) 1059-1065.
- EGGS**, *Etheostoma lyncem* (factors import. in egg-size assess.) 404-412; *Pseudotriakis microdon* (oophagy by embryo in utero) 460-468; *Ambystoma barbouri* (egg-laying site choice, pred. avoid.) 468-473; *Etheostoma davisoni* (egg-attaching beh., descript., hatch. time) 537-539; *Uta stansburiana* (egg mass correl. with glucocorticoid) 691-697; *Ophidion marginatum* (descript.) 799-819; *Iguana iguana* (mineral sources & hydric var. in embryo. dev.) 851-858; *Perca flavescens* (salin. toler., popn. diffs.) 859-865; *Bagrus meridionalis* (fry feed on trophic eggs) 1084-1088; *Litoria lesueuri* (in nests) 1120-1123; *Rana blythi* (in nests) 1123-1127.
- ENDANGERED SPECIES**, *Hybognathus amarus* (phylogen. anal., alloz. data) 36-44; *Chelonia mydas*, *Eretmochelys imbricata* (nest placement) 45-53; *Andrias japonicus* (low genet. var.) 232-235; *Gopherus agassizii* (longevity in wild) 367-374; *Bufo periglenes* (evid. of popn. decline) 413-420; *Etheostoma (forbesi n. sp., chienense n. sp.)* (proposed endangered list.) 615-646; *Etheostoma rubrum*

- (microhab. dynamics) 658-671; *Gila (ditaenia, sp., ditaenia × sp.)* (limited hybridiz. not threat.) 697-703; *Iguana iguana* (mineral sources & hydric var. in embryo. dev.) 851-858; *Catostomus tahoensis*, *Chasmistes cujus* (no evid. of hybridiz.) 935-941; *Chelonia mydas* (sex ratio & growth rates in wild juvs.) 1098-1103.
- EVOLUTION**, *Bufo americanus* (sex. select.) 1-7; *Notropis (chlorocephalus, lutipinnis [3 forms])* (rel. to biogeogr.) 68-81; *Gambusia holbrooki* (of life hist. strat.) 94-102; *Lampetra (ayresi, richardsoni, ayresi × richardsoni)* (size diffs. as isol. mech.) 191-196; *Basilichthys (microlepidotus, australis)* (spec. by chromos. rearrang.) 256-258; *Anolis* (13 spp., Lesser Antilles) (of size, char. displacement) 279-288, 288-295; *Luxilus* (all spp. & subsp.) (phylogen. anal., compar. diff. data sets) 306-322, (phylogen. anal., chrom. NORs data rel. to other types data) 332-343; *Cnemidophorus (tesselatus, marmoratus)* (of parthenogen., beh., physiolo., & genet. factors) 323-331; *Clinidae* (phylogen. anal., alloz. & morph. data, rel. to biogeogr.) 375-392; *Gasterosteus aculeatus* (2 forms) ("superspecies") 432-443; *Gila bicolor* (fossil evid. for endemism) 539-544; *Bufo valliceps* (opportun. for sex. select.) 647-658; *Anolis sagrei* (phenetic changes & var. in coloniz. sp.) 935-941; *Crotaphytus collaris* (theory of periph. popns. as source of n. spp.) 968-980; *Xiphophorus nigrensis* (sex. select.) 980-986; *Prionotus (alatus, paralatus, alatus × paralatus)* (describe vicariant zone, hybridiz. in 13 other clades in same area) 1039-1046.
- EXTINCTION**, *Anolis* (13 spp., Lesser Antilles) (in competition on islands) 279-288, 288-295; *Bufo periglenes* (poss. extinct., declines of amphibs. worldwide) 413-420.
- FECUNDITY**, *Menidia beryllina* (& ecol.) 53-61; *Cophosaurus texanus* (in energy-limited popn.) 82-93; *Etheostoma lynceum* (factors in clutch-size assess.) 404-412; *Poecilia picta* (brood size var. with pred. & food avail.) 782-790; *Xiphophorus (nigrensis, multilineatus, pygmaeus)* (seas. var.) 1074-1077; *Nerodia rhombifer* 1096-1098.
- FEEDING**, *Pseudotriakis microdon* (oophagy by embryo in utero) 460-468; *Caretta caretta*, *Chelonia mydas*, *Dermochelys coriacea* (hatchl. diel activ. cycles, rel. to feeding) 478-484; *Cottus bairdi* (lat. line in prey detect., dev. changes) 485-492; *Pagothemia borchgrevinkii* (social coop. in tearing large prey) 559-562; *Ambystoma tigrinum melanostictum* (diffs. btwn. cannibal. & noncannibal. morphs) 672-679; *Rana clamitans* (rates in larv., rel. to temper.) 725-730, (rates in larv., rel. to temper. & microhab.) 731-740; *Rhacophorus gauri* (tdpls., exotroph. & endotroph. morphs) 887-890; *Clinostomus funduloides*, *Oncorhynchus mykiss*, *Luxilus coccogenis*, *Seomotilus atromaculatus*, *Notropis leuciodus* (compet. interact. in foraging) 898-902; *Mullioides martinicus*, *Ocyurus chrysurus* (advant. for aggres. mimics) 914-917; *Bagrus meridionalis* (fry feed on trophic eggs) 1084-1088; *Crotalus viridis viridis* (starv. aff. enzyme conc., diffs. can. aff. electroph. mobil. of alloz.) 1117-1119.
- FEMORAL GLAND**, *Dipsosaurus dorsalis* (secre. & discrim.) 229-232.
- FOOD**, *Plethodon cinereus* (tail regen., eff. of food avail.) 235-237; *Poecilia picta* (food avail. aff. life hist.) 782-790; *Bufo woodhousei* (reduced food aff. thermoreg. beh.) 865-876; *Pseudotriakis (microdon, acrales = microdon)* (stom. cont.) 877-886; *Bagrus meridionalis* (trophic eggs main food of fry) 1084-1088.
- GENETICS**, *Andrias japonicus* (no genet. var., alloz. data) 232-235; *Cnemidophorus (tesselatus, marmoratus)* (gen. disfunctions in parthenogen. sp., ploidy) 323-331; *Rhinichthys (osculus thermalis, o. yarrowi)* (alloz. & mtDNA) 528-535; *Catostomus tahoensis*, *Chasmistes cujus* (dupl. gene expression & alloz. diffs.) 935-941; *Crotalus viridis viridis* (enzyme dilut. aff. electroph. mobil. of one & possibly more enzyme systs.) 1117-1119.
- GEOGRAPHIC LOCALITIES**
- Alabama, *Crystallaria asprella* 535-537; *Etheostoma davisoni* 537-539; *Etheostoma (nigripinne, corona n. sp., crossopterus, neopterus)* 615-646; *Notropis leuciodus* 954-968; *Prionotus (alatus, paralatus, alatus × paralatus)* 1039-1046.
- Alaska, *Gasterosteus aculeatus* (2 forms) 432-443; *Gadus macrocephalus* 1088-1094.
- Antarctica, *Pagothemia borchgrevinkii* 559-562.
- Argentina, *Serrasalmus spilopleura* 108-112; *Parapimelodus valenciennis* 138-146.
- Arizona, *Gopherus agassizii* 367-374; *Phrynosoma cornutum* 519-527; *Thamnophis marcianus* 573-577; *Hyla eximia*, *Ambystoma tigrinum nebulosum* 607-614.
- Arkansas, Arkansas stream fishes (165 spp.) 296-305; *Nerodia rhombifer* 1096-1098.
- Atlantic Ocean, *Centrobranchus nigroocellatus* 154-161.
- Australia, *Varanus (gouldii, panoptes)* (W. A.) 343-350; *Pavoraja (Insentiraja n. subgen.) laxipella n. sp. (QLD)* 839-850; *Litoria lesueuri (QLD)* 1120-1123.
- Bahamas, *Anolis sagrei* 935-941; *Chelonia mydas* 1098-1103.
- Barbados, *Eleutherodactylus johnstonei* 569-573.
- Belize, *Iguana iguana* 851-858; *Anolis sagrei* 935-941.
- Bolivia, *Bufo veraguensis* group 162-172.
- Borneo, *Acanthopthalmus kuhlii* 172-186.
- Brazil, *Serrasalmus spilopleura* 108-112; *Parapimelodus (nigribarbis, valenciennis)* 138-146; *Phyllodytes melanomystax n. sp.* 187-191; *Eurycheilus n. gen. pantherinus n. sp.* 215-223; *Osteocephalus taurinus*, *Pipa arrabali* 894-897; *Characidium fasciatum* 1066-1073.
- California, *Dipsosaurus dorsalis* 229-232; *Xerobates*

- agassizii 237-241; *Gopherus agassizii* 367-374; *Gasterosteus aculeatus* (2 forms) 432-443; *Carcharodon carcharias* 680-690; *Uta stansburiana* 691-697; *Hypsiglossus rubicundus* 1080-1084.
- Canada, *Lampetra* (ayresi, richardsoni, ayresi \times richardsoni) (Brit. Col.) 191-196; *Gasterosteus aculeatus* (2 forms) (Nova Scot.) 432-443; *Rana clamitans* (Nova Scot.) 725-730, 731-740; *Gadus* (morhua, ogac) (New Bruns.) 1088-1094; *Boreogadus saida* (N.W. Terr.) 1088-1094.
- Canary Is., *Pseudotriakis microdon* 877-886.
- Cayman Is., *Anolis sagrei* 935-941.
- Chad, *Ctenopoma petherici* 709-724.
- Chile, *Basilichthys (microlepidotus, australis)* 256-258.
- Colombia, *Ekeblemaria (nigra, myersi)* 769-776; *Eleutherodactylus bellona* n. sp. 826-831.
- Colorado, *Hybognathus hankinsoni* 36-44; *Bufo woodhousei* 865-876; *Crotalus viridis viridis* 1117-1119.
- Costa Rica, *Chelonia mydas*, *Eretmochelys imbricata* 45-53; *Bufo periglenes* 413-420; *Sibon (argus, longifrenis, annulatus, dimidiatus)* 421-432; *Oscacilia osae* n. sp. 703-708; *Ekeblemaria myersi* 769-776; *Poecilia gillii* 908-914.
- Cuba, *Girardinus (creolus, serripenis = creolus)* 474-477; *Cricosaura typica* 563-565; *Tropidophis fuscus* n. sp. 820-825; *Anolis sagrei* 935-941.
- Easter Is., *Erythrocles scintillans* 1028-1032.
- Ecuador, *Ekeblemaria tira* n. sp. 769-776.
- Egypt, *Crocodylus niloticus* 1023-1027.
- Fiji Is., *Gehyra (vorax [3 forms], oceanica [3 forms])* 443-460.
- Florida, *Menidia beryllina* 53-61; *Caretta caretta*, *Chelonia mydas*, *Dermochelys coriacea* 478-484; *Poecilia latipinna* 741-746; *Fundulus (cingulatus = auroguttatus & rubifrons)* 747-759; *Anolis sagrei* 935-941; *Prionotus (alatus, paralatus, alatus \times paralatus)* 1039-1046.
- Galapagos Is., *Xyrichtys victori* n. sp. 1053-1059.
- Georgia, *Notropis lutipinnis* 68-81.
- Greater Antilles, *Anolis* 288-295.
- Greenland, *Gadus ogac* 1088-1094.
- Guatemala, *Sibon dimidiatus* 421-432.
- Gulf of Mexico, *Archosargus probatocephalus* 917-919; *Prionotus (alatus, paralatus, alatus \times paralatus)* 1039-1046.
- Hawaii, *Histrio histrio* 247-248; *Erythrocles scintillans* 1028-1032.
- Honduras, *Sibon dimidiatus* 421-432; *Anolis sagrei* 935-941.
- Illinois, *Etheostoma (gracile, spectabile)*, *Perca flavescens*, *Percina caprodes*, *Stizostedion (canadense, vitreum)* 535-537; *Etheostoma squamiceps* 615-646.
- Indian Ocean, *Centrobranchus nigrocellatus* 154-161.
- Indiana, *Etheostoma nigrum*, *Percina (evides, sciera)* 535-537; *Etheostoma squamiceps* 615-646.
- Irian Jaya, *Gehyra vorax* (3 forms) 443-460.
- Israel, *Malpolon monspessulanus*, *Natrix tessellata* 244-246.
- Italy, *Cobitis taenia* 223-228; *Gasterosteus aculeatus* (2 forms) 432-443.
- Jamaica, *Anolis sagrei* 935-941.
- Japan, *Andrias japonicus* 232-235; *Gasterosteus aculeatus* (2 forms) 432-443; *Pseudotriakis microdon* 460-468; *Pseudotriakis acrales = microdon* 877-886; *Erythrocles scintillans* 1028-1032.
- Java, *Acanthophthalmus (kuhlii, cuneovirgatus)* 172-186.
- Kentucky, *Ambystoma barbouri* 468-473; *Etheostoma cinereum* 535-537; *Etheostoma (crossopterus, squamiceps, chienense* n. sp.) 615-646; *Notropis leuciodus* 954-968.
- Lesser Antilles, *Anolis* (13 spp.) 279-288, 288-295.
- Lizard Is., *Amphiprion (melanopus, akindynos, percula, perideraion)*, *Premnas biaculeatus* 902-908.
- Maine, *Bufo americanus* 1-7; *Plethodon cinereus* 113-120.
- Malawi, *Bagrus meridionalis* 1084-1088.
- Malaysia (W.), *Acanthophthalmus (kuhlii, cuneovirgatus)* 172-186.
- Marianas Is., *Boiga irregularis* (Guam) 791-799; *Amphiprion melanopus* (Guam) 902-908.
- Marquesas Is., *Gehyra oceanica* (3 forms) 443-460.
- Maryland, *Perca flavescens* 859-865.
- Mexico, *Gopherus agassizii* (Son.) 367-374; *Sibon dimidiatus* (Vera Cruz, Oax.) 421-432; *Gila (ditaenia, sp., ditaenia \times sp.)* (Son.) 697-703; *Ekeblemaria myersi* (Baja Cal., Sin., Nay., Col., Oax.) 769-776; *Anolis sagrei* (Camp., Quin. Roo, Yuc.) 935-941; *Xiphophorus nigrensis* (San Luis Pot.) 980-986; *Xiphophorus (nigrensis, multilineatus, pygmaeus)* (San Luis Pot.) 1074-1077; *Citharichthys platophrys*, *Engyophrys sanctilarenti*, *Monolene asadai*, *Etropus crossotus*, *Syacium ovale* (Gulf of Cal.) 1077-1080; *Citharichthys spilopterus* (Vera Cruz) 1094-1095; *Barisia rudicollis* (Mex., Mor.) 1114-1117.
- Michigan, *Rana (pipiens, sylvatica)* 26-35; *Cottus bairdi* 485-492.
- Mid-Atlantic Bight, *Scyliorhinus retifer* 251-253; *Ophidion (robinsi* n. sp., *marginatum*), *Lepophidium profundorum* 799-819.
- Mississippi, *Hybognathus nuchalis* 36-44; *Etheostoma lynceum* 404-412; *Etheostoma rubrum* 658-671; *Pomoxis annularis* 1033-1038; *Prionotus (alatus, paralatus, alatus \times paralatus)* 1039-1046.
- Missouri, *Crotaphytus collaris* 968-980.
- Nebraska, *Ambystoma tigrinum melanostictum* 672-679.
- Nevada, *Uta stansburiana* 691-697; *Catostomus tahoensis*, *Chasmistes cujus* 935-941.
- New Caledonia, *Erythrocles taeniatus* n. sp. 1028-1032.
- New Jersey, *Paralichthys dentatus* 120-128.
- New Mexico, *Hybognathus (amarus, placitus)* 36-44; *Cnemidophorus (tesselatus, marmoratus)* 323-331; *Phrynosoma cornutum* 519-527.
- New York, *Gasterosteus aculeatus* (2 forms) 432-443.
- New Zealand, *Pseudotriakis microdon* 460-468.
- Nicaragua, *Sibon dimidiatus* 421-432.
- Nigeria, *Ctenopoma (petherici, kingsleyae, nebulosum)* 709-724.
- North Carolina, *Notropis (chlorocephalus, lutipinnis)*

- [3 forms]) 68-81; *Clinostomus funduloides*, *Oncorhynchus mykiss*, *Luxilus coccigenis*, *Semotilus atromaculatus*, *Notropis leuciodus* 898-902; *Clemmys muhlenbergii* 1107-1111.
- Ohio, *Lepomis macrochirus* 544-547; *Hyla chrysoscelis* 565-569.
- Oregon, *Gasterosteus aculeatus* (2 forms) 432-443; *Gila bicolor* 539-544; *Bufo boreas*, *Rana cascadae*, *Hyla regilla* 577-584; *Uta stansburiana* 691-697.
- Pacific Ocean, *Centrobranchus nigroocellatus* 154-161.
- Panama, *Sibon (argus, longifrenis, annulatus)* 421-432; *Ekemblemia (nigra, myersi)* 769-776; *Muloides martinicus*, *Ocyurus chrysurus* 914-917.
- Papua New Guinea, *Gehyra (vorax [3 forms], oceanica [3 forms])* 443-460; *Amphiprion melanopus* 902-908.
- Pennsylvania, *Perca flavescens* 859-865.
- Peru, *Bufo (arborescens n. sp., veraguensis group)* 162-172; *Eleutherodactylus eurydactylus n. sp.* 1002-1006.
- Poland, *Gadus morhua* 1088-1094.
- Puerto Rico, *Alsophis portoricensis* 62-68; *Anolis (stratulus, gundlachi, evermanni)* 392-403; *Opisthognathus (whitehurstii, maxillosus)* 1046-1053.
- Red Sea, *Alicia kirki* 1007-1013.
- Rhode Island, *Pungitius occidentalis* 209-214.
- Russia, *Eomola n. gen. bimaxillaria n. sp. (fossil)* 1014-1023; *Gadus morhua* 1088-1094.
- Sabah, *Rhacophorus gauri* 887-890; *Rana blythii* 1123-1127.
- Sarawak, *Acanthophtalmus (kuhlii, agmus n. sp.)* 172-186; *Rhacophorus gauri* 887-890.
- Society Is., *Gehyra oceanica* (3 forms) 443-460; *Erythrocles scintillans* 1028-1032.
- Soloman Is., *Gehyra oceanica* (3 forms) 443-460.
- South Africa, *Hyperolius marmoratus* 1111-1114.
- South Carolina, *Notropis lutipinnis* 68-81; *Gambusia holbrooki* 94-102; *Elaphe guttata* 573-577; *Tantilla coronata* 1103-1106.
- Sri Lanka, *Varanus (bengalensis, salvator)* 102-107.
- Sudan, *Ctenopoma petherici* 709-724.
- Sumatra, *Acanthophtalmus kuhlii* 172-186.
- Sweden, *Gasterosteus aculeatus* (2 forms) 432-443; *Vipera berus* 1127-1130.
- Tennessee, *Etheostoma spectabile* 535-537; *Etheostoma (olivaceum, nigripinne, forbesi n. sp., corona n. sp., crossopterus, squamiceps, pseudovulvatum n. sp., neopterus, oophylax n. sp.)* 615-646; *Notropis leuciodus* 954-968.
- Texas, *Cophosaurus texanus* 82-93; *Thamnophis marciatus* 573-577; *Bufo valliceps* 647-658; *Lagodon rhomboides* 1059-1065.
- Thailand, *Acanthophtalmus (kuhlii, cuneovirgatus)* 172-186.
- Trinidad, *Poecilia picta* 782-790.
- United Kingdom, *Gasterosteus aculeatus* (2 forms) (Gr. Brit.) 432-443.
- Vanuatu, *Gehyra (vorax [3 forms], oceanica [3 forms])* 443-460.
- Virginia, *Plethodon cinereus* 235-237; *Scyliorhinus retifer* 251-253; *Phoxinus oreas* × *Semotilus atromaculatus* 548-553; *Plethodon cinereus* 776-781; *Notropis leuciodus* 954-968.
- Washington, *Uta stansburiana* 691-697.
- West Africa, *Ctenopoma (petherici, kingsleyae, nebulosum)* 709-724.
- Wisconsin, *Morone crysops* × *mississippiensis* 553-559.
- Wyoming, *Rhinichthys (osculus thermalis, o. yarroui)* 528-535.
- Zaire, *Ctenopoma kingsleyae* 709-724.
- GROWTH, *Menidia beryllina* (rate in wild) 53-61; *Cophosaurus texanus* (rates in wild) 82-93; *Gambusia holbrooki* (rates in temper. stress) 94-102; *Paralichthys dentatus* (young-of-yr. in estuaries) 120-128; *Plethodon cinereus* (tail regen., eff. of food avail.) 235-237; *Hyla eximia*, *Ambystoma tigrinum nebulosum* (of pred. aff. by dens. of trid. & prey) 607-614; *Iguana iguana* (hydric condit. in embryos aff. met. rate & growth) 851-858; *Rhacophorus gauri* (of wild tdppls., exotroph. & endotroph. morphs) 887-890; *Crotaphytus collaris* (rate red. in periph. popn.) 968-980; *Bagrus meridionalis* (of fry, trophic eggs main food) 1084-1088; *Chelonia mydas* (rates in wild juvs., not sex. dimorph.) 1098-1103.
- HABITAT, *Chelonia mydas*, *Eretmochelys imbricata* (nest microhab., yr. var.) 45-53; *Paralichthys dentatus* (var. hab., young-of-yr. in estuaries) 120-128; *Bufo arborescens n. sp. (microhab.)* 162-172; *Phyllodytes melanomystax n. sp. (microhab.)* 187-191; *Eurycheilus n. gen. pantherinus n. sp.* 215-223; Arkansas stream fishes (165 spp.) (water qual. variables & fish distrib.) 296-305; *Anolis (stratulus, gundlachi, evermanni)* (rainforest, 3-dimen., interspp. diffs.) 392-403; *Gasterosteus aculeatus* (2 forms) (anadromous & freshwater forms) 432-443; *Gehyra (vorax [3 forms], oceanica [3 forms])* (sp. diffs.) 443-460; *Rhinichthys (osculus thermalis, o. yarroui)* (therm. diffs.) 528-535; *Hyla eximia*, *Ambystoma tigrinum nebulosum* (complex aff. pred.-prey interact.) 607-614; *Etheostoma (olivaceum, nigripinne, forbesi n. sp., corona n. sp., crossopterus, squamiceps, chienense n. sp., pseudovulvatum n. sp., neopterus, oophylax n. sp.)* 615-646; *Etheostoma rubrum* (microhab. dynamics in wild & lab.) 658-671; *Gila (ditaenia, sp., ditaenia × sp.)* (hab. in hybridiz. of native spp.) 697-703; *Ctenopoma (petherici, kingsleyae)* (sp. diffs.) 709-724; *Rana clamitans* (diel var. in tdppl. microhab., feeding rate & temper.) 731-740; *Poecilia latipinna* (salin. toler. diffs. in popns. from labs. of diff. salin.) 741-746; *Poecilia picta* (descript., pred. & food avail. aff. life hist.) 782-790; *Ophidion (robinsii n. sp., marginatum)*, *Lepophidium profundorum* (larv.) 799-819; *Eleutherodactylus bellona n. sp.* (wet rainforest) 826-831; *Bufo woodhousei* (microhab. factors aff. thermoreg. beh.) 865-876; *Pseudotriakis (microdon, acrales = microdon)* (depth) 877-886; *Rhacophorus gauri* (tdpls., exotroph. & endotroph. morphs) 887-890; *Osteocephalus taurinus*,

- Pipa arrabali* (pred. presence aff. distrib. of prey in hab. patches) 894–897; *Poecilia gillii* (hab. diffs. aff. popn. struct.) 908–914; *Crotaphytus collaris* (deterior. over 15 yrs. rel. to life hist. changes) 968–980; *Erythrocles (taeniatus)* n. sp., *scintillans*) 1028–1032; *Xyrichtys victori* n. sp. (microhab. of adults diff. from juvs.) 1053–1059; *Litoria lesueuri* (of stream-edge nests) 1120–1123; *Rana blythi* (microhab. of nests) 1123–1127.
- HEARING, *Hyperolius marmoratus* (intermale spacing & call freq. diffs. aff. female hearing discrim.) 1111–1114.
- HERMAPHRODITISM, *Muraenidae* (8 gen., 28 spp.) (& sex change, gonad morph. & hist.) 197–209; *Cobitis taenia* (sex diff. gonochor., no sequent. hermaphr.) 223–228; *Archosargus probatocephalus* (gonads not hermaphrod.) 917–919; *Xyrichtys victori* n. sp. (protogyn. hermaph.) 1053–1059.
- HIBERNATION, *Hyla chrysoscelis* (freeze-toler.) 565–569.
- HISTOLOGY, *Plethodon cinereus* (vomeronasal organ) 113–120; *Muraenidae* (8 gen., 28 spp.) (gonads, hermaphr., sex-change) 197–209; *Cobitis taenia* (gonad dev. anat.) 223–228; *Plethodon cinereus* (anat. locs. of territ. pheromone secr.) 776–781; *Boiga irregularis* (& histochem. of Duvernoy's gland) 791–799; *Archosargus probatocephalus* (of gonads, not hermaphrod.) 917–919; *Alticus kirki* (gills, vascularized skin, amphib. fish) 1007–1013; *Opisthognathus (whitehursti, maxillosus)* (urogenit. apparatus unique in teleosts) 1046–1053; *Boreogadus saida*, *Gadus (macrocephalus, morhua, ogac)* (scale tubercles of the 2 gen. not homolog.) 1088–1094; *Tantilla coronata* (oviducts & sperm storage) 1103–1106.
- HOME RANGE, *Dipsosaurus dorsalis* (femoral gland secr. & discrim.) 229–232; *Anolis stratulus* (arboreal, 3-dimen., male territ.) 392–403; *Eleutherodactylus johnstonei* (size, rel. to body size, male territ.) 569–573; *Plethodon cinereus* (anat. locs. of territ. pheromone secr.) 776–781; *Xyrichtys victori* n. sp. (territor. rel. to individ. diffs. in male color) 1053–1059; *Hypsiglossus rubicundus* (color cues in territor., seas. diffs.) 1080–1084; *Clemmys muhlenbergii* (methods of movmt. meas. in turtles) 1107–1111.
- HYBRIDIZATION, *Hybognathus (amarus × placitus)* (gen. introgress.) 36–44; *Notropis (chlorocephalus, lutipinnis)* [3 forms] (phylogen. anal. shows no intergrad.) 68–81; *Serrasalmus spilopleura* (btwn. popns., kar. evid.) 108–112; *Lamprologus (ayresi, richardsoni, ayresi × richardsoni)* (artif., intersp. isol. mech.) 191–196; *Cnemidophorus (tesselatus, marmoratus)* (origin of parthenogen. sp.) 323–331; *Phoxinus phoxinus × Semotilus atromaculatus* (natural, descript., beh.) 548–553; *Morone chrysops × mississippiensis* (in wild, after introduction) 553–559; *Etheostoma (nigripinne × corona, n. × crossopterum, n. × forbesi)* (in wild, areas of sympat.) 615–646; *Gila (ditaenia, sp., ditaenia × sp.)* (in wild, btwn. native spp.) 697–703; *Catostomus tahoensis*, *Chasmodon* *mistes cujus* (no evid. in alloz. data) 935–941; *Prionotus (alatus, paralatus, alatus × paralatus)* (in vicariant zone in N. Gulf of Mex.) 1039–1046.
- LARVAE, *Rana (pipiens, sylvatica)* (intersp. compet.) 26–35; *Bombina orientalis* (tail-injury) 129–137; *Phyllodytes melanomystax* n. sp. (descript.) 187–191; *Cottus bairdi* (lat. line in prey detect., dev. changes) 485–492; *Bufo boreas*, *Rana cascadae*, *Hyla regilla* (palatabil. to insect preds.) 577–584; *Hyla eximia*, *Ambystoma tigrinum nebulosum* (pred.-prey interact. when hab. complex. var.) 607–614; *Ambystoma tigrinum melanostictum* (feeding beh., diffs. btwn. cannibal. & non-cannibal. morphs) 672–679; *Rana clamitans* (feeding rates, temper. var.) 725–730, (diel var. in microhab., feeding rate & temper.) 731–740; *Ophidion (robinsi)* n. sp., *marginatum*, *Lepophidium profundorum* (descript., dev., seas. diffs. in distrib.) 799–819; *Perca flavescens* (salin. toler., popn. diffs.) 859–865; *Rhacophorus gaudi* (exotroph. & endotroph. morphs) 887–890; *Xenopus laevis* (swim ascent & descent mech.) 890–894; *Osteocephalus taurinus*, *Pipa arrabali* (*O. taurinus* tdpis. microdistrib. aff. by *P. arrabali* pred. presence) 894–897; *Litoria lesueuri* (in & near stream-edge nests) 1120–1123.
- LATERAL LINE, *Cottus bairdi* (in prey detect., dev. changes) 485–492.
- LIFE HISTORY, *Menidia beryllina* (reprod. ecol.) 53–61; *Cophosaurus texanus* (energy-limited popn.) 82–93; *Gambusia holbrooki* (plasticity in temper. responses) 94–102; *Gopherus agassizii* (longev. in wild, compar. popns.) 367–374; *Etheostoma lyncium* (factors import. in egg-size assess.) 404–412; *Etheostoma rubrum* (juvs., ad. males & females microhab. diffs.) 658–671; *Poecilia picta* (popn. body size struct., fec., reprod. mode) 782–790; *Crotaphytus collaris* (changes over 15 yrs. in periph. popn.) 968–980.
- LIGHT, *Rana clamitans* (rel. to larv. feeding rates, temper. var.) 725–730.
- LOCOMOTION, *Caretta caretta*, *Chelonia mydas*, *Dermochelys coriacea* (posthatch. swimming “frenzy” & diel cycles) 478–484; *Anolis carolinensis* (mechanics of jumping) 492–504; *Bufo woodhousei* (optim. temper. for hopping, rel. to thermoreg. beh.) 865–876; *Xenopus laevis* (tdpl. ascent & descent mech.) 890–894; *Pomoxis annularis* (swim. effic. at diff. speeds) 1033–1038; *Vipera berus* (ventral scale anomalies) 1127–1130.
- METHODS, *Xerobates agassizii* (blood sampling, handling & testing in field) 237–241; *Malpolon monspessulanus*, *Natrix tessellata* (collect Duvernoy's gland secr.) 244–246; *Clinostomus funduloides*, *Onchorhynchus mykiss*, *Luxilus coccogenis*, *Semotilus atromaculatus*, *Notropis leucoides* (test for intersp. compet. in wild stream fishes) 898–902; *Lagodon rhomboides* (compare methods of determ. low tem-

- per. toler.) 1059–1065; *Clemmys muhlenbergii* (hand-catching causes bias in mvmt. estim. in turtles) 1107–1111; *Crotalus viridis viridis* (enzyme dilut. aff. electroph. mobil. of one & possibly more enzyme systs.) 1117–1119.
- MIGRATION**, (definitions & origins of terms rel. to freshwater-saltwater migr.) 248–251; *Gehyra (vora)* [3 forms], *oceanica* [3 forms] (dispersal by human transport) 443–460; *Clemmys muhlenbergii* (mvmt. w/in & btwn. popns., seas. & sex diffs.) 1107–1111.
- MIMICRY**, *Mulloides martinicus*, *Ocyurus chrysurus* (aggres. mimics) 914–917.
- MITOCHONDRIAL DNA**, *Caiman crocodilus*, *Crocodylus rhombifer*, *Gavialis gangeticus*, *Tomistoma schlegelii* (phylogen. anal., mtDNA data conflicts morph. data) 241–243; *Luxilus* (all spp. & subspp.) (phylogen. anal., compar. mtDNA to morph. & alloz. data) 306–322; *Rhinichthys (osculus thermalis, o. yarrowi)* (supports subsp. design.) 528–535.
- MORPHOLOGY**, *Muraenidae* (8 gen., 28 spp.) (gonads, hermaphr., sex-change) 197–209; *Bufo* (27 spp.) (abdom. cutan. muscles) 760–769; *Percidae* (9 genera, 70 spp.) (scales, unique morph. in *Percidae*) 986–1001; *Opisthognathus (whitehurstii, maxillosus)* (urogenit. apparatus unique in teleosts) 1046–1053; *Boreogadus saida*, *Gadus (macrocephalus, morhua, ogac)* (scale tubercles of the 2 gen. not homolog.) 1088–1094; *Citharichthys spilopterus* (reversed indiv., only one known for sp.) 1094–1095; *Vipera berus* (scale anomalies) 1127–1130.
- NESTING**, *Chelonia mydas*, *Eretmochelys imbricata* (placement) 45–53; *Ambystoma barbouri* (egg-laying site choice) 468–473; *Phoxinus oreas* × *Semotilus atromaculatus* (beh. leads to natural hybridiz.) 548–553; *Hypsopops rubicundus* (color cues in territor. defence) 1080–1084; *Bagrus meridionalis* (fry feed on trophic eggs in nest) 1084–1088; *Litoria lesueuri* (nests at stream-edge, descript.) 1120–1123; *Rana blythi* (descript., female voc., seas.) 1123–1127.
- NOMENCLATURE**, *Centrobranchus (andreae, nigrocellatus, choerocephalus and brevisrostris = nigrocellatus)* (synon.) 154–161; (definitions & origins of terms rel. to freshwater-saltwater migrations) 248–251; *Girardinus (creolus, serripennis = creolus)* (synon.) 474–477; *Leptodactylus fragilis = labialis* (valid name change) 584–585; *Ctenopoma (petherici, kingsleyae, Anabas breviventris = C. kingsleyae, Anabas riggenbachi & togoensis = C. petherici)* (synon.) 709–724; *Pundulus (cingulatus = auroguttatus & rubifrons)* (name change, comprises 2 spp.) 747–759; *Pseudotriakis (microdon, acrales = microdon)* (synon.) 877–886; (use of term batrachology) 887; *Characidium fasciatum* (redescript. b/c types & paratypes incl. 3 other spp.) 1066–1073.
- OLFACTION**, *Gerrhosaurus nigrolineatus* (prey odor discrim.) 146–154; *Dipsosaurus dorsalis* (femoral gland secr. & discrim.) 229–232.
- OSTEOLOGY**, *Eleutherodactylus bellona* n. sp. (cranial co-ossific.) 826–831.
- PALEONTOLOGY**, *Gila bicolor* (evid. for endemism) 539–544; *Eomola* n. gen. *bimaxillaria* n. sp. (fossil) (Eocene molid) 1014–1023.
- PARASITES**, *Lampetra (ayresi, richardsoni, ayresi × richardsoni)* (par. & non-par. sp.-pair isol. mech.) 191–196.
- PARTHENOGENESIS**, *Cnemidophorus (tesselatus, marmoratus)* (evol. of parth.) 323–331.
- PEROMONES**, *Plethodon cinereus* (sex. dimorph., vomeronasal organ) 113–120; *Dipsosaurus dorsalis* (femoral gland secr. & discrim.) 229–232; *Plethodon cinereus* (anat. locs. of territ. pheromone secr.) 776–781.
- PHYLOGENETIC ANALYSIS**, *Neoteleostei*, *Eurypterygii*, *Ctenosquamata* (clad. anal., osteol. data) 8–25; *Hybognathus (amarus, hankinsoni, nuchalis, placitus)* (gen. dist., alloz. data) 36–44; *Notropis (chlorocephalus, lutipinnis)* [3 forms] (gen. dist., alloz. & morph. data) 68–81; *Serrasalmus spilopleura* (2 forms, hybrid., kar. data) 108–112; *Parapimelodus (nigribarbis, valenciensis)* (osteol. & morphomet. data) 138–146; *Gerrhosaurus nigrolineatus* (hypoth. pred. method diffs. within family) 146–154; *Bufo (arborescendens* n. sp., *veraiguensis* group) (notes on phenetic sp. group) 162–172; *Eurycheilus* n. gen. *pantherinus* n. sp., *Otothyris*, *Pseudotothyris*, *Pseudotocinclus*, *Parotocinclus*, *Schizolecis* (phylogen. diagnosis, clad. anal. of tribe *Otothyriini*) 215–223; *Caiman crocodilus*, *Crocodylus rhombifer*, *Gavialis gangeticus*, *Tomistoma schlegelii* (clad. anal., mtDNA conflicts morph. data) 241–243; *suborder Gobioidae* (clad. anal., unique sperm duct gland morph.) 253–256; *Luxilus* (all spp. & subspp.) (clad. anal., genet. dist., compar. mtDNA to morph. & alloz. data) 306–322, (clad. anal., NOR data conflicts with morph., alloz. & mtDNA data) 332–343; *Argentinoid* & *Osmeroid* fishes (clad. anal., osteol. data) 350–366; *Clinidae* (clad. anal., genet. dist., alloz. data, rel. to biogeogr.) 375–392; *Gasterosteus aculeatus* (2 forms) (clad. anal., genet. dist., alloz. data) 432–443; *Girardinus (creolus, serripennis = creolus)* (clad. anal., morph. data) 474–477; *Squatina* (7 spp.), *Rajiformes* (7 spp.), *Pristiophoridae* (4 spp.), *Squaloidei* (19 spp.), *Hexanchoidae* (3 spp.), *Chlamydoselachus anguineus* (elasmobranch clad. anal., osteol. & morph. data) 505–518; *Crystallaria asprella*, *Etheostoma (cinereum, gracile, nigrum, spectabile)*, *Perca flavescens*, *Percina (caprodes, evides, sciara)*, *Stizostedion (canadense, vitreum)* (clad. anal., alloz. data) 535–537; *Cricosaura typica* (clad. anal., chrom. & mtDNA data) 563–565; *Etheostoma (olivaceum, nigripinne, forbesi* n. sp., *corona* n.

- sp., *crossopterus*, *squamiceps*, *chienenense* n. sp., *pseudovulvatum* n. sp., *neopterum*, *oophylax* n. sp.) (clad. anal., morph. & alloz. data) 615-646; *Ekmblemaria* (*lira* n. sp., *nigra*, *myersi*) (clad. anal., morph. data, *Ekmblemaria* sister to *Acanthemblemara*) 769-776; *Notropis leuciodus* (clad. anal. of popns., alloz. data) 954-968; Percidae (9 genera, 70 spp.) (clad. anal., scale morph. data) 986-1001; *Eomola* n. gen. *bimaxillaria* n. sp. (fossil) (clad. anal., osteol. data, Eocene moloid) 1014-1023; *Boreogadus saida*, *Gadus* (*macrocephalus*, *morhua*, *ogac*) (clad. anal., scale tubercles) 1088-1094; *Crotalus viridis viridis* (enzyme dilut. aff. electroph. mobil. of one & possibly more enzyme systs.) 1117-1119.
- PHYSIOLOGY**, *Varanus* (*bengalensis*, *salvator*) (water influx & met. rate in wild) 102-107; *Xerobates agassizii* (methods of blood sampling, handling & testing in field) 237-241; *Varanus* (*gouldii*, *panoptes*) (eff. of temp. & size on met. rate) 343-350; *Hyla chrysoscelis* (freeze-toler., mechanisms) 565-569; *Uta stansburiana* (egg mass correl. with blood glucocorticoid) 691-697; *Poecilia latipinna* (salin. toler., popn. diffs.) 741-746; *Cichlasoma nigrofasciatum* (low-pH stress mod. parental beh.) 832-839; *Iguana iguana* (mineral sources & hydric var. in embryo. met. & dev.) 851-858; *Bufo woodhousei* (physiol. condit. aff. thermoreg. beh.) 865-876; *Alticus kirki* (amphib. fish, met. rates in water & air) 1007-1013; *Crocodylus niloticus* (blood factors in juvs. rel. to popn. dens., body size & sex) 1023-1027; *Pomoxis annularis* (met. rate at diff. swim. speeds) 1033-1038; *Lagodon rhomboides* (compare methods of determ. low temper. toler.) 1059-1065.
- POPULATIONS**, *Cophosaurus texanus* (energy-limited popn.) 82-93; *Scyliorhinus retifer* (var. size at sex. matur.) 251-253; *Gopherus agassizii* (longev. in wild, compar. popns.) 367-374; *Anolis* (*stratulus*, *gundlachi*, *evermanni*) (rainforest, popn. dens., wet & dry seas. diffs.) 392-403; *Gehyra* (*vorax* [3 forms], *oceanica* [3 forms]) (morph. var. btwn. island popns.) 443-460; *Hyla eximia*, *Ambystoma tigrinum nebulosum* (larv. commun. struct. rel. to pred., compet. & hab. complx.) 607-614; *Bufo valliceps* (interpopn. diffs. in mating struct.) 647-658; *Poecilia latipinna* (salin. toler., popn. diffs.) 741-746; *Poecilia picta* (pred. & food avail. aff. popn. life hist.) 782-790; *Perca flavescens* (salin. toler. of eggs & larv., popn. diffs.) 859-865; *Poecilia gillii* (body size & sex. struct. in diff. habs.) 908-914; *Anolis sagrei* (inter- & intra-popn. phenetic var. in coloniz. sp.) 935-941; *Notropis leuciodus* (clad. anal. of 10 popns., alloz. data) 954-968; *Crotaphytus collaris* (life hist. evid. of stress in periph. popn.) 968-980; *Crocodylus niloticus* (eff. of popn. dens., body size & sex on physiol. factors) 1023-1027.
- PREDATION**, *Chelonia mydas*, *Eretmochelys imbricata* (var. by nest placement) 45-53; *Bombina orientalis* (eff. of tail-injury on dev.) 129-137; *Gerrhosaurus nigrolineatus* (prey odor discrim.) 146-154; *Lampetra* (*ayresi*, *richardsoni*, *ayresi* × *richardsoni*) (pred. & non-pred. sp.-pair isol. mech.) 191-196; *Plethodon cinereus* (tail regen., eff. of food avail.) 235-237; *Cnemidophorus* (*tesselatus*, *marmoratus*) (diff. in escape beh. btwn. parthenogen. & sex. spp.) 323-331; *Ambystoma barbouri* (avoid. of fish preds. in egg-laying sites) 468-473; *Caretta caretta*, *Chelonia mydas*, *Dermochelys coriacea* (posthatch. "frenzy" & diel cycle rel. to pred.) 478-484; *Cottus bairdi* (lat. line in prey detect., dev. changes) 485-492; *Phrynosoma cornutum* (blood-squirting as pred. defense) 519-527; *Bufo boreas*, *Rana cascadae*, *Hyla regilla* (palatabil. of larvae to insect preds.) 577-584; *Hyla eximia*, *Ambystoma tigrinum nebulosum* (prey surviv. when compet. & hab. complx. var.) 607-614; *Ambystoma tigrinum melanostrictum* (diffs. btwn. cannibal. & non-cannibal. morphs) 672-679; *Carcharodon carcharias* (spatiotemp. pattns. of pred.) 680-690; *Poecilia picta* (pred. aff. life hist.) 782-790; *Cichlasoma nigrofasciatum* (parental beh. resp. to pred. mod. by low-pH stress) 832-839; *Osteocephalus taurinus*, *Pipa arrabali* (pred. presence aff. microdistrib. of prey) 892-897; *Amphiprion* (*melanopus*, *akindynos*, *percula*, *perideraion*), *Premnas biaculeatus* (fish protect anemone host from pred.) 902-908; *Mulloidies martinicus*, *Ocyurus chrysurus* (aggress. mimics) 914-917.
- REPRODUCTION**, *Bufo americanus* (calls, sex. select.) 1-7; *Chelonia mydas*, *Eretmochelys imbricata* (nest placement & success) 45-53; *Menidia beryllina* (& ecol.) 53-61; *Cophosaurus texanus* (seas., fec., sex. matur.) 82-93; *Gambusia holbrooki* (sex. matur. & temper. stress) 94-102; *Plethodon cinereus* (sex. dimorph., vomeronasal organ) 113-120; *Lampetra* (*ayresi*, *richardsoni*, *ayresi* × *richardsoni*) (diff. male vs female size decr. mating success) 191-196; *Muraenidae* (8 gen., 28 spp.) (gonad morph. & hist., hermaphr., sex-change) 197-209; *Cobitis taenia* (gonad dev. anat., gonochor.) 223-228; *Scyliorhinus retifer* (size at sex. matur.) 251-253; suborder Gobioidi (unique form of sperm duct glands) 253-256; *Etheostoma lynceum* (propagule-size & clutch-size determ., egg devel.) 404-412; *Bufo perigrines* (drastic decline in breeding) 413-420; *Pseudotriakis microdon* (descr. repro. organs, embryo oophagous) 460-468; *Ambystoma barbouri* (egg-laying site choice, pred. avoid.) 468-473; *Etheostoma davisoni* (spawning & egg-attaching beh.) 537-539; *Phoxinus phoxinus* × *Semotilus atromaculatus* (repro. beh. leads to hybridiz.) 548-553; *Thamnophis marcianus*, *Elaphe guttata* (mating beh. timing) 573-577; *Bufo valliceps* (calls, mating system) 647-658; *Uta stansburiana* (egg mass correl. with glucocorticoid) 691-697; *Poecilia picta* (fec., reprod. mode, body size at matur.) 782-790; *Ophidion marginatum* (reprod. beh., diel

- & seas. pattn.) 799–819; *Cichlasoma nigrofasciatum* (parental beh. mod. by low-pH stress) 832–839; *Archosargus probatocephalus* (gonad histol., not hermaphrod.) 917–919; *Catostomus tahoensis*, *Chasmistes cujus* (problems due to man-altered breeding hab.) 935–941; *Crotaphytus collaris* (red. in periph. popn.) 968–980; *Xiphophorus nigrensis* (sex. select., mating beh.) 980–986; *Opisthognathus* (*whitehurstii*, *maxillosus*) (urogenit. apparatus unique in teleosts) 1046–1053; *Xyrichtys victori* n. sp. (protogyn. hermaphrod.) 1053–1059; *Xiphophorus* (*nigrensis*, *multilineatus*, *pygmaeus*) (breeding cycles in nature) 1074–1077; *Hypsypops rubicundus* (color-cued territor. defense rel. to breeding seas.) 1080–1084; *Boreogadus saida*, *Gadus* (*macrocephalus*, *morhua*, *ogac*) (nuptial scale tubercles of the 2 gen. not homolog.) 1088–1094; *Nerodia rhombifer* (female weight, litter size, neonate size & sex ratio, partur. seas.) 1096–1098; *Chelonia mydas* (testost. levels in male juvs. correl. w/ body size) 1098–1103; *Tantilla coronata* (oviduct anat. & sperm storage, seas. changes) 1103–1106; *Hyperolius marmoratus* (male calls & female pref.) 1111–1114; *Litoria lesueuri* (nests, eggs, larv., calls) 1120–1123; *Rana blythi* (nest-building, calls, microhab., seas.) 1123–1127.
- RESPIRATION**, *Varanus* (*gouldii*, *panoptes*) (met. rate meas. by oxy. consump., rel. to size & temp.) 343–350; *Alticus kirki* (amphib. fish, air & aqat. oxygen uptake) 1007–1013; *Pomoxis annularis* (oxy. consump. at diff. swim. speeds) 1033–1038.
- SALINITY**, *Gasterosteus aculeatus* (2 forms) (anadromous & freshwater forms) 432–443; *Poecilia latipinna* (toler., popn. diffs.) 741–746; *Perca flavescens* (toler. of eggs & larv., popn. diffs.) 859–865.
- SEX**, *Chelonia mydas*, *Eretmochelys imbricata* (determ. by nest temp.) 45–53; *Gambusia holbrooki* (sex. matur. & temper. stress) 94–102; *Muraenidae* (8 gen., 28 spp.) (gonad morph. & hist., hermaphr., sex-change) 197–209; *Cobitis taenia* (gonad dev. anat., sex diff. gonochor.) 223–228; *Bufo valliceps* (sex. selection) 647–658; *Poecilia gillii* (hab. diffs. aff. sex ratio) 908–914; *Xiphophorus nigrensis* (sex. select.) 980–986; *Nerodia rhombifer* (ratio in neonates) 1096–1098; *Chelonia mydas* (ratio in wild juvs. about 1:1) 1098–1103.
- SEXUAL DIMORPHISM**, *Plethodon cinereus* (vomeronasal organ) 113–120; *Cobitis taenia* (in size & growth rate) 223–228; *Eleutherodactylus johnstonei* (body size, home range size) 569–573; *Ctenopoma* (*pertherici*, *kingsleyae*) (size, spined scales) 709–724; *Ekemlemaria* (*tira* n. sp., *nigra*, *myersi*) (cirri, some color.) 769–776; *Xyrichtys victori* n. sp. (color & size, protogyn. hermaphrod.) 1053–1059; *Citharichthys platophrys*, *Engyophrys sancti laurenti*, *Monolene asaedai*, *Etropus crossotus*, *Syacium ovale* (in color & morph.) 1077–1080.
- SIZE**, *Bufo americanus* (rel. to call var., sex. select.) 1–7; *Rana* (*pipiens*, *sylvatica*) (larv., aff. intersp. compet.) 26–35; *Cophosaurus texanus* (large in energy-limited popn.) 82–93; *Gambusia holbrooki* (& temper. stress) 94–102; *Lampetra* (*ayresi*, *richardsoni*, *ayresi* × *richardsoni*) (isol. mech. in speciation) 191–196; *Anolis* (13 spp., Lesser Antilles) (evol. of size diffs.) 279–288, 288–295; *Varanus* (*gouldii*, *panoptes*) (eff. on met. rate) 343–350; *Gopherus agassizii* (age-size rels., compar. popns. 367–374; *Etheostoma lynceum* (propagule-size determ., factors in egg-size assess.) 404–412; *Eleutherodactylus johnstonei* (home range rel. to body size) 569–573; *Poecilia gillii* (hab. diffs. aff. max. body size) 908–914; *Mullidoes martinicus*, *Ocyurus chrysurus* (in aggress. mimicry) 914–917; *Crotaphytus collaris* (red. in periph. popn.) 968–980; *Xiphophorus nigrensis* (male size polymorph. rel. to sex. select.) 980–986; *Xyrichtys victori* n. sp. (sex. dimorph., protogyn. hermaphrod.) 1053–1059; *Nerodia rhombifer* (mater. size rel. to litter & neonate size) 1096–1098.
- SURVIVAL**, *Hyla eximia*, *Ambystoma tigrinum nebulosum* (of prey when dens. & hab. complx. var.) 607–614; *Vipera berus* (w/ scale anomalies) 1127–1130.
- SYMBIOSIS**, *Amphiprion* (*melanopus*, *akindynos*, *percula*, *perideraion*), *Premnas biaculeatus* (fish protect anemone host from pred.) 902–908.
- SYSTEMATICS**, Neoteleostei, Eurypterygii, Ctenosquamata (phylogen. anal., osteol. data) 8–25; *Hypognathus* (*amarus*, *hankinsoni*, *nuchalis*, *placitus*) (phylogen. anal., alloz. data) 36–44; *Notropis* (*chlorocephalus*, *lutipinnis* [3 forms]) (phylogen. anal., morph. & alloz. data) 68–81; *Serrasalmus spilopleura* (phylogen. anal., kar. data, 2 forms, hybrid.) 108–112; *Parapimelodus* (*nigribarbis*, *valenciennisi*) (resurr. sp., phylogen. anal.) 138–146; *Centrobranchus* (*andreae*, *nigroocellatus*, *choerocephalus* and *brevirostris* = *nigroocellatus*) (synon., photophores, morphomet. & larv. data) 154–161; *Bufo* (*arborescens* n. sp., *veraguensis* group) (describe S. Amer. sp. groups, key to *B. veraguensis* group, phylogen. notes) 162–172; *Acanthopthalmus* (*kuhlii*, *cuneovirgatus*, *agmus* n. sp.) (describe *A. kuhlii* complex, key to spp.) 172–186; *Phyllodytes melanomystax* n. sp. 187–191; *Eurycheilus* n. gen. *pantherinus* n. sp., *Otothyris*, *Pseudotothyris*, *Pseudotocinclus*, *Parotocinclus*, *Schizolecis* (phylogen. anal., tribe *Orothyridini*, morph. data, key to genera) 215–223; *Luxilus* (all spp. & subspp.) (phylogen. anal., mtDNA compar. to morph. & alloz. data) 306–322, (chrom. NOR data rel. to other types data) 332–343; *Argentinoid* & *Osmeroid* fishes (phylogen. anal., osteol. data) 350–366; *Clinidae* (phylogen. anal., alloz. data) 375–392; *Sibon* (*argus*, *longifrenis*, *annulatus*, *dimidiatus*) (re-descript.) 421–432; *Gasterosteus aculeatus* (2 forms) (phylogen. anal., alloz. data) 432–443; *Gehyra* (*vorax* [3 forms], *oceanica* [3 forms]) (key to spp. & forms, morph. data, biogeog.) 443–460; *Girar-*

dinus (*creolus*, *serripennis* = *creolus*) (redianagnos., synon., phylogen. anal., morph. data) 474-477; *Squalina* (7 spp.), Rajiformes (7 spp.), Pristiophoridae (4 spp.), Squaloidei (19 spp.), Hexanchoidae (3 spp.), *Chlamydoselachus anguineus* (elasmobranch phylogen. anal., osteol. & morph. data) 505-518; *Rhinichthys (osculus thermalis, o. yarrowi)* (alloz., mtDNA & therm. toler. support subsp. design.) 528-535; *Crystallaria asprella*, *Etheostoma (cinerum, gracile, nigrum, spectabile)*, *Perca flavescens*, *Percina (caprodes, evides, sciera)*, *Stizostedion (canadense, vitreum)* (phylogen. anal., alloz. data) 535-537; *Cricosaura typica* (phylogen. anal., chrom. & mtDNA data) 563-565; *Etheostoma (olivaceum, nigripinnis, forbesi n. sp., corona n. sp., crossopterum, squamiceps, chienense n. sp., pseudoulatum n. sp., neopterum, oophylax n. sp.)* (diagn. *E. squamiceps* complex, descr. or redescr. all spp., key to breeding males, phylogen. anal., morph. & alloz. data) 615-646; *Gila (ditaenia, sp., ditaenia x sp.)* (limited hybridiz. btwn. native spp.) 697-703; *Oscacilia osae n. sp.* (key to *Oscacilia* [11 spp.]) 703-708; *Ctenopoma (petherici, kingsleyae, Anabas breviventralis = C. kingsleyae, Anabas riggenbachii & togoensis = C. petherici)* (synon., redescr., biogeogr.) 709-724; *Fundulus (cingulatus = auroguttatus & rubifrons)* (name change, comprises 2 spp., alloz. & morph. diffs.) 747-759; *Ekemblemaria (lira n. sp., nigra, myersi)* (phylogen. anal., morph. data) 769-776; *Ophidion (robinsi n. sp., marginatum)*, *Lepophidium profundorum* (larv. dev. defines genera) 799-819; *Tropidophis fuscus n. sp.* (compar. to congeners) 820-825; *Eleutherodactylus bellona n. sp.* (compar. to congeners) 826-831; *Pavoraja (Insentiraja n. subgen.) laxipella n. sp.* (compar. to rels.) 839-850; *Pseudotriakis (microdon, acrales = microdon)* (spp. diffs. due to allomet., synon.) 877-886; *Catostomus tahoensis*, *Chasmistes cujus* (no evid. of hybridiz., dupl. gene express. & alloz. data) 935-941; *Notropis leuciodus* (phylogen. anal. of popns., alloz. data, biogeogr. hypoth.) 954-968; Percidae (9 genera, 70 spp.) (phylogen. anal., scale morph. data) 986-1001; *Eleutherodactylus eurydactylus n. sp.* (include n. sp. in *diadematus* group (8 spp.) of *unistrigatus* series) 1002-1006; *Eomola n. gen. bimaxillaria n. sp.* (fossil) (phylogen. anal., osteol. data, Eocene molid) 1014-1023; *Erythrocles (taeniatus n. sp., scintillans)* (compar. closest rel.) 1028-1032; *Prionotus (alatus, paralatus, alatus x paralatus)* (hybridiz. limited to vicariant zone) 1039-1046; *Characidium fasciatum* (redescript. b/c types & paratypes incl. 3 other spp.) 1066-1073; *Barisia rudicollis* (redescript.) 1114-1117; *Crota-*

lus viridis viridis (enzyme dilut. aff. electroph. mobil. of one & possibly more enzyme systs.) 1117-1119.

TEMPERATURE, *Bufo americanus* (rel. to call var.) 1-7; *Chelonia mydas*, *Eretmochelys imbricata* (aff. sex determ., yr. var.) 45-53; *Menidia beryllina* (aff. reprod. seas.) 53-61; *Gambusia holbrooki* (plasticity in life hist. strat.) 94-102; *Paralichthys dentatus* (temp.-induced mort.) 120-128; *Varanus (gouldii, panoptes)* (eff. on met. rate) 343-350; *Bufo periglenes* (increase correl. with popn. decline) 413-420; *Rhinichthys (osculus thermalis, o. yarrowi)* (therm. toler. compar.) 528-535; *Hyla chrysoscelis* (freeze-toler., overwinter adapt.) 565-569; *Etheostoma rubrum* (diffs. aff. microhab. choice) 658-671; *Rana clamitans* (aff. larv. feeding rates) 725-730, (rel. to larv. microhab. choice, feeding rates) 731-740; *Bufo woodhousei* (thermoreg. beh. in new metamorphs) 865-876; *Lagodon rhomboides* (compare methods of determ. low temper. toler.) 1059-1065.

VARIATION, *Gasterosteus aculeatus* (2 forms) (geogr. var., alloz. data) 432-443; *Gehyra (vorax [3 forms], oceanica [3 forms])* (morph. var. btwn. island popns.) 443-460; *Ctenopoma (petherici, kingsleyae)* (geogr. var. within & btwn. spp.) 709-724; *Anolis sagrei* (phenetic changes & var. in coloniz. sp.) 935-941; *Notropis leuciodus* (geogr., btwn. 10 popns., alloz. data) 954-968.

VENOM, *Alsophis portoricensis* (digest. funct.) 62-68; *Malpolon monspessulanus*, *Natrix tessellata* (method to collect Duvernoy's gland secr.) 244-246; *Boiga irregularis* (Duvernoy's gland unlike true venom gland) 791-799.

VOMERONASAL ORGAN, *Plethodon cinereus* (sex. dimorph.) 113-120; *Gerrhosaurus nigrolineatus* (in prey discrim.) 146-154.

WATER BALANCE, *Varanus (bengalenis, salvator)* (water influx rel. to hab.) 102-107; *Hyla chrysoscelis* (dehydr. in freeze-toler.) 565-569; *Bufo* (27 spp.) (cutan. water uptake, rel. to abdom. cutan. muscles) 760-769; *Eleutherodactylus bellona n. sp.* (cranial co-ossific. found in wet forest frog) 826-831; *Iguana iguana* (hydric condit. in embryos aff. met. rate & growth) 851-858; *Bufo woodhousei* (hydric condit. aff. thermoreg. beh.) 865-876.